

MEADOWLARK HILLS: A POST-OCCUPANCY EVALUATION OF A
CONGREGATE HOUSING FACILITY FOR OLDER PERSONS

by

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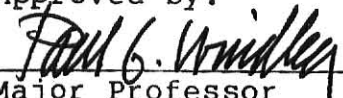
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This work is dedicated to my mother for
her enduring love, encouragement, and support.

"Theory without application is empty, and
application without theory is blind."

Reese and Overton (1980)

INTRODUCTION

Overview

Until the very recent past, theory development in the field of architecture has been limited at best. Practically all of existing architectural "theory" has dealt with the aesthetic elements of design (i.e., form, rhythm, proportion, etc.) Architectural design is usually based upon the architect's intuitive skills, and is often highly dependent upon his own personal experiences. Gutman (1977) points out a major problem with the architect's lack of a theoretical knowledge base:

"Architects are generally more circumscribed than physicians or lawyers in their capacity to make certain that what they propose (as a solution to the client's problem) is what actually will take place....The situation is very different in law or medicine in which the practitioner usually assumes the right to say what is best for the patient or client on the grounds of scientific or objective knowledge."

In the past, no concerted attempt was made to broaden the knowledge base of the profession so that new theory could be generated, leading to more knowledge, which in turn would generate more theory. However, there is an emerging trend in architectural design which has as its focus the broadening of the field's theoretical knowledge base. Borrowing knowledge from other disciplines (most notably

psychology, sociology, anthropology, and geography), architects are beginning to make practical applications of substantive knowledge in the design of new environments. One of the more promising applications of utilizing empirical research findings in the design process is through the use of post-occupancy evaluation.

This thesis reports the findings of a post-occupancy evaluation of a housing facility for the elderly.

Post-Occupancy Evaluation and the Design Process

Post-occupancy evaluation (POE) has been alternately referred to as environmental design evaluation, post-construction diagnosis, and diagnostic evaluation, and it has been defined elsewhere as "an appraisal of the degree to which a designed setting satisfies explicit and implicit human needs and values" (Friedmann, Zimring and Zube, 1978). Various types of designed settings have been the subject of POEs, including public housing for the elderly (Carp, 1966; Cranz, et al, 1977; Howell, 1981; Malozemoff, Anderson and Rosenbaum, 1978), public housing for moderate and low income families (Cooper, 1975; Zeisel and Griffith, 1975), office environments (Farrenkopf and Roth, 1980; Marans and Spreckelmeyer, 1981), and even correctional settings (Wener and Olson, 1980).

According to Brill (1974), there are two basic aspects to design evaluation: (1) gaining information about the

usefulness of buildings, and (2) using that information in the design and use of new buildings. Assessing the effectiveness of particular environments in terms of meeting the needs of users not only provides information relevant to a particular situation, but also provides information which may be generalizable to other situations as well. Uncovering sources of environment-behavior mismatch in a recently completed building may help to avoid replication of similar errors in future design projects.

POE is a somewhat recent development in the field of architectural design. Traditionally, there has not been an overt attempt by designers to observe the consequences of their actions and to systematically learn from past experiences. According to Bechtel (1977), the lack of evaluation is the most devastating criticism that can be made against current design practice. He states:

"The assumption behind evaluation is that without adequate knowledge of what one has done in the past there is a serious question as to whether one knows what he is doing in the present."

A number of authors have discussed the failure of design professionals to consider evaluation as an essential ingredient in the design process (Friedman, Zimring and Zube, 1977; Geddes and Gutman, 1977; Lang, Burnette, Moleski and Vachon, 1974; Rapoport, 1969; Sanoff, 1968; Zeisel, 1975). The design process as followed in most professional practices today usually terminates with the construction of the project. Friedmann, Zimring and Zube (1977) have

suggested that evaluation that does occur "is inclined to be sporadic, limited in scope, and idiosyncratic in approach. Data from these evaluations therefore tend to be noncumulative and noncomparable--they do not really alter the design process."

Recognition of the importance of post-occupancy evaluation as an integral part of the architectural design process has grown dramatically in the fifteen or so years that have passed since the concept was first introduced. An increasing number of environmental designers, researchers, and policy makers have turned to POEs of already existing environments as useful sources of information in the planning and design of new environments. However, Marans and Spreckelmeyer (1981) point out that there has also been an increasing concern among researchers that the procedures used to conduct many post-occupancy evaluations have not been systematic in nature. Marans and Spreckelmeyer state:

"Few attempts have been made to gather the necessary data in an orderly manner or to analyze them in such a way that the results can have both immediate and long-term applicability. Furthermore, the approaches to evaluation vary greatly, and few have been based on well-developed conceptual models."

Meadowlark Hills: A Case Study

The present study represents an attempt to overcome some of the limitations of previously conducted design evaluations. Specifically, the intent is to employ both theoretical and practical considerations in the evaluation of one particular built environment in order to provide results that may be applied at both specific and general levels. The building chosen as the subject of this design evaluation is Meadowlark Hills, a congregate housing facility for older persons located in Manhattan, Kansas.

The purpose of this investigation is two-fold: (1) to evaluate the effectiveness of the main building at Meadowlark Hills in terms of how well that environment meets the needs of residents; and (2) to develop a predictive model of housing satisfaction, based on the empirical results, which may be generalizable to other similar situations. The concept of "residential satisfaction" is used as a means for conducting this post-occupancy evaluation. A further discussion of residential satisfaction, including its effect on personal well-being, is presented later in this chapter.

In one sense, this investigation may be viewed as a case study, since it involves the evaluation of one particular designed setting. However, the results may also be viewed in more generalizable terms since the study utilizes theoretical concepts which may be generalized to

other similar situations. Thus, the underlying intention of this study is to provide results which have both immediate and long-term applicability.

A Description of Meadowlark Hills

Meadowlark Hills is a non-profit, interdenominational retirement community for persons 60 years of age and older located in Manhattan, Kansas. Sponsored by the Manhattan Retirement Foundation (MRF) and developed with the involvement of six Manhattan churches, Meadowlark Hills was opened in the autumn of 1979. As stated in its by-laws, the main purpose of MRF is to: "Provide elderly persons, on a non-profit basis, with facilities and services, especially designed to meet the physical, social, and psychological needs of the aging and to contribute to their health, security, happiness, and usefulness in living."

Viewed in terms of its location within the community, Meadowlark Hills is somewhat isolated from the two major shopping districts in Manhattan--the downtown area and Westloop, a suburban shopping center (see Figure 1). Meadowlark Hills is situated 3 miles north of downtown Manhattan and 2 1/2 miles northeast of the Westloop shopping center. A grocery store and several other services are located within 1/2 mile of the site; however, the topography of the surrounding area requires pedestrians to negotiate a very steep hill when walking to and from Meadowlark Hills

Figure 1: Location of the Site

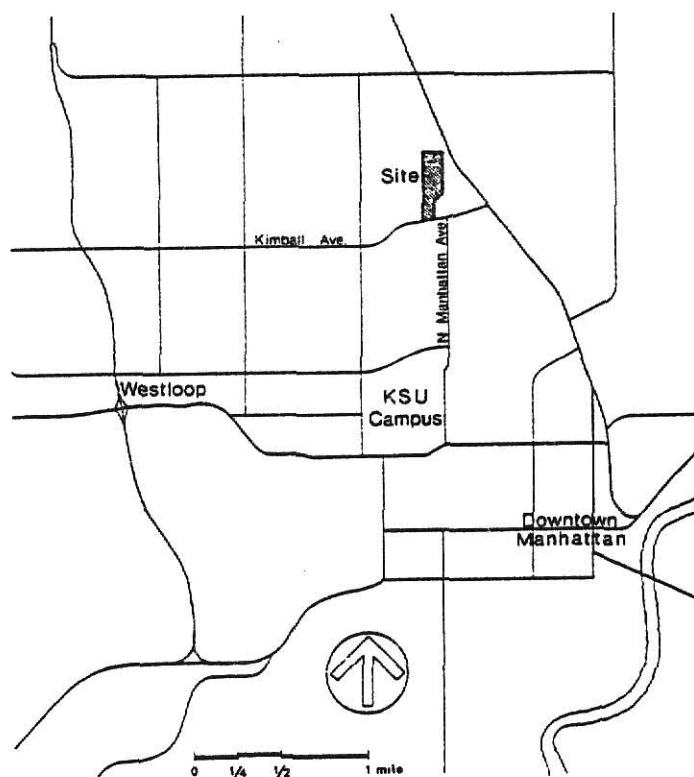
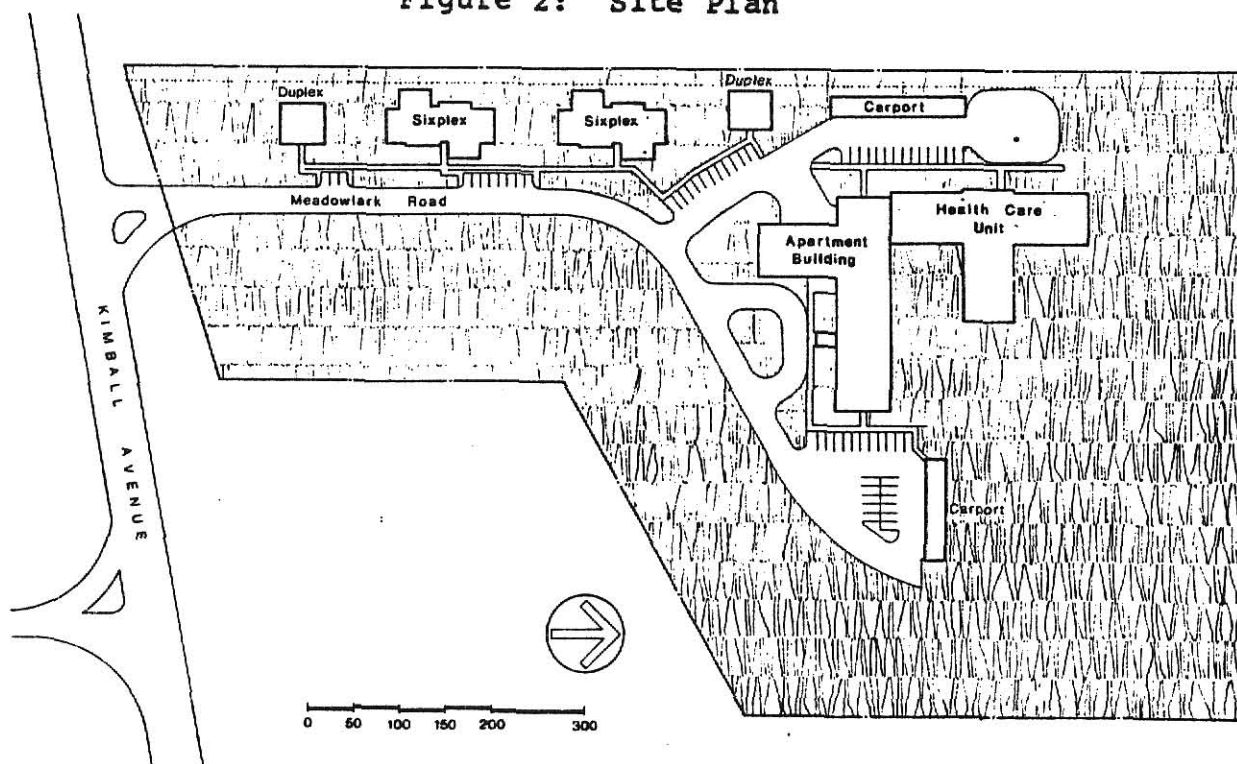


Figure 2: Site Plan



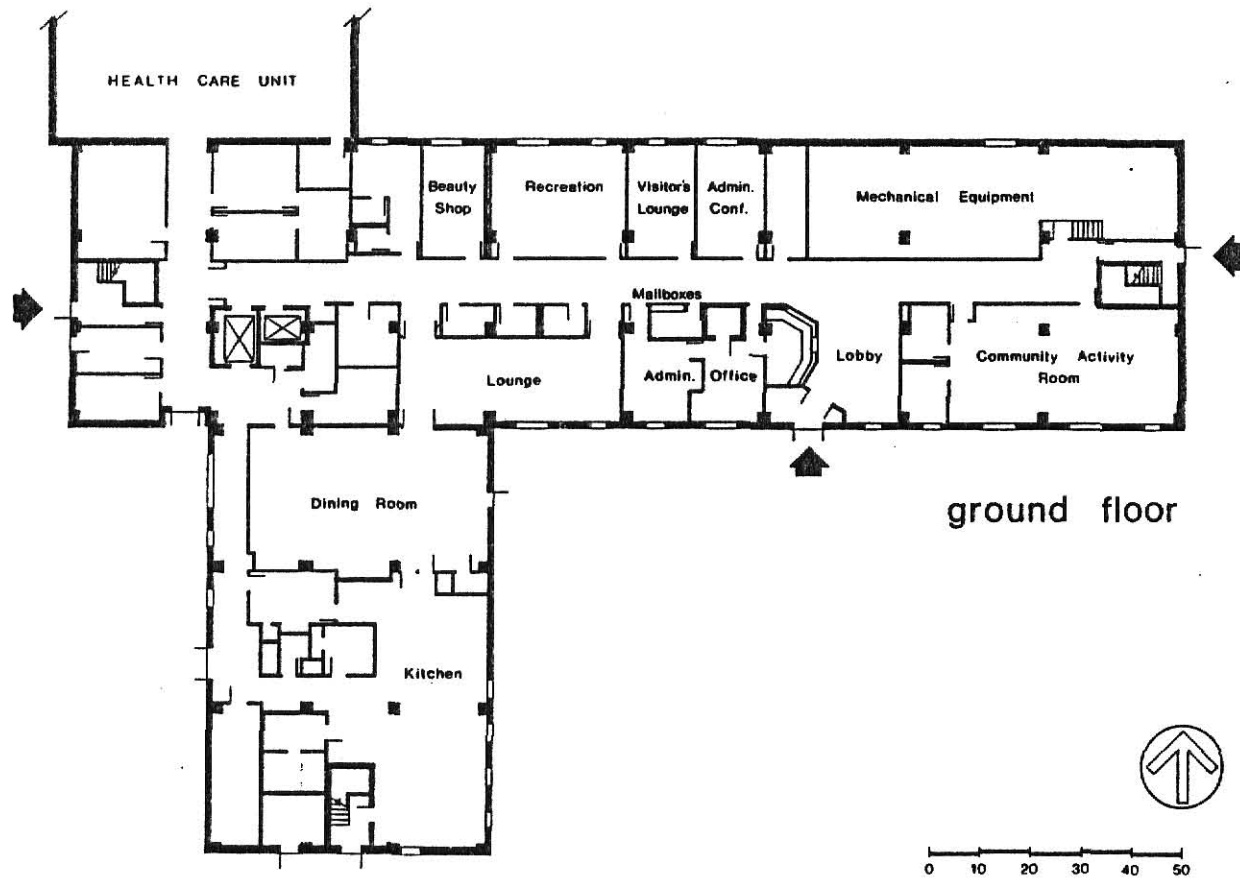
from this neighborhood service center. As a result, the vast majority of residents are required to utilize some form of transportation in order to get to the closest grocery store, even though it is less than 1/2 mile away.

Located near the corner of North Manhattan Avenue and Kimball Avenue, Meadowlark Hills is situated on 28 acres overlooking the scenic Blue Valley. At present, the retirement center consists of: (1) the main five-story apartment building; (2) an interconnected 53-bed long term health care unit; (3) two sixplex "cottages"; and (4) two duplex "cottages" (see Figure 2). Long-range plans include the addition of another high-rise apartment building, a gallery-chapel, additional health care facilities, and several sixplex and duplex "cottages".

The main five-story building of Meadowlark Hills was the focus of this design evaluation. The apartment building is basically L-shaped; the longer of the two axes is five stories tall and the shorter axis is four stories. Pre-cast concrete panels provide the basic structure of the building, and exterior finish materials include brick and stucco.

Community activity spaces, as well as administrative offices and ancillary facilities, are located on the ground floor of the building (see Figure 3). Specifically, the community activity spaces include: (1) community activity room; (2) centralized dining room; (3) main lounge; (4) visitor's lounge; (5) recreation room; and (6) beauty shop.

Figure 3: Ground Floor Plan

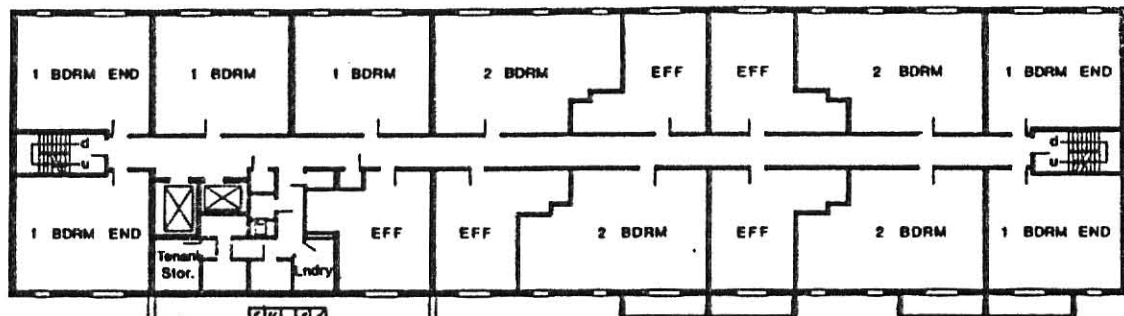


All of these spaces are directly adjacent to the main corridor, with the exception of the dining room which can be reached by passing through the lounge. Also located on the main corridor between the primary entrance and the elevator are the residents' mailboxes.

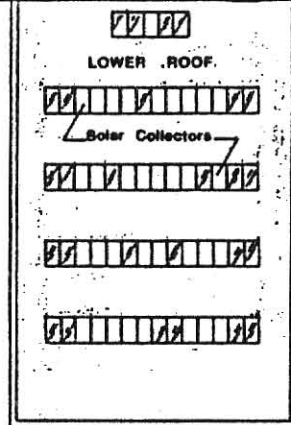
The apartment units are located on the upper four floors of the building (see Figure 4). In addition to apartment units, each residential floor contains a laundry room, tenant storage space, and a garbage collection room. The second, third, and fourth floors also have a floor lounge located near the elevator. There are a total of 75 apartments in the building--fifteen apartments are located on the fifth floor and twenty are located on each of the lower residential floors.

Apartments range in size from the 460 square foot efficiency units to the 800 square foot two-bedroom units. There are a total of 16 efficiency units, 42 one-bedroom units, and 16 two-bedroom units. (For purposes of analysis, a distinction was made between one-bedroom apartments located at the end of hallways and those located elsewhere, since the end apartments are somewhat smaller in size.) For a more detailed description of the apartment units, refer to Figure 5.

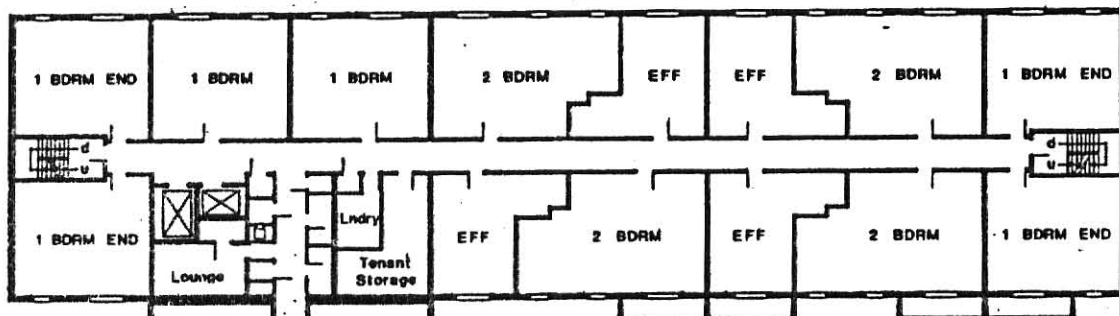
Figure 4: Residential Floor Plans



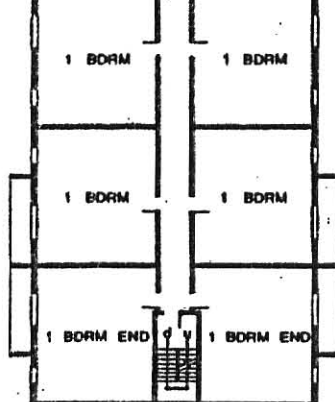
residential floor 5



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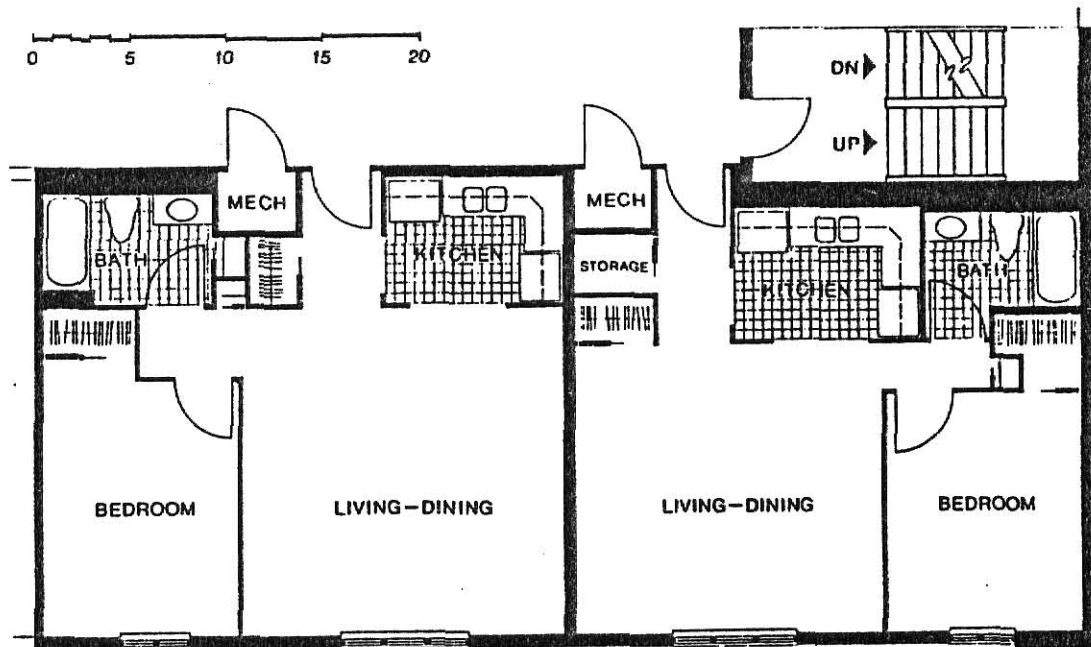


residential floors 2, 3 and 4



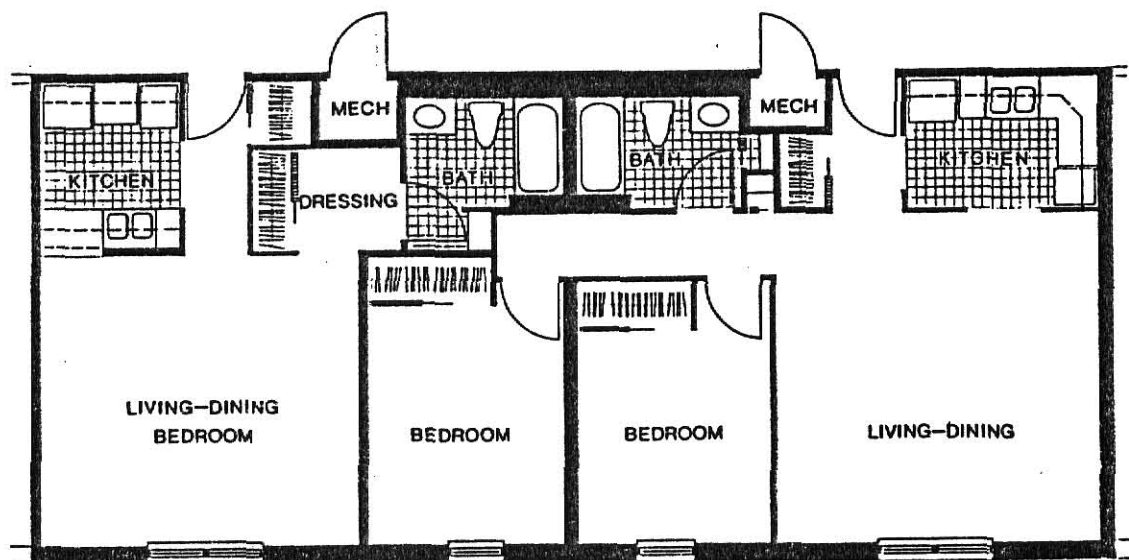
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Figure 5: Apartment Unit Plans



one bedroom

one bedroom end



efficiency

two bedroom

Previous Research on Residential Satisfaction

In recent years, there have been a number of empirical studies that have dealt with people's attitudes toward the communities and residential environments in which they live (Bohland and Davis, 1979; Campbell, Converse and Rogers, 1976; Cranz, Christensen and Dyer, 1977; Galster and Hesser, 1980; Lansing, Marans and Zehner, 1970; Marans and Rogers, 1975). A major purpose underlying this research has been an interest on the part of social scientists in determining environmental factors which have an impact on housing satisfaction.

These previous investigations have attempted to measure user response as it relates to particular aspects of the residential environment. Attitudes about the residential environment have been determined either indirectly (by asking people about their residential preferences and then making an inference from the responses to their feelings of satisfaction or dissatisfaction) or directly (by asking people how they feel or what they like or dislike about their home, neighborhood, or community).

General conclusions which have been drawn from past studies on residential satisfaction have been summarized elsewhere (see Kasl, 1977; Marans and Rogers, 1975) and include the following:

- (1) A vast majority of people, including many of those living in "substandard" environments, tend to be fairly content with the residential environment in which they live.

(2) The social setting, including interpersonal relations, and the type of housing are salient factors influencing an individual's level of satisfaction.

(3) Other important factors related to general satisfaction include the physical condition of the residential environment, the convenience of having nearby public and private facilities and services, the size of one's dwelling, and the presence or absence of certain conditions, such as spacious, quiet, and safe surroundings.

Viewed in a larger context, residential satisfaction can be seen as a component of the broader concept of the quality of life. In their comprehensive study on factors influencing life satisfaction, Campbell, Converse and Rogers (1976) found that satisfaction with the residential environment together with satisfaction with other domains of life experience (such as health, friendship, work, marriage, and financial well-being) can influence the quality of life of the individual. Other empirical analyses (Angrist, 1974; Cranz, Christensen and Dyer, 1977; Marans and Rogers, 1975; Smith, 1976) have also concluded that the residential environment has an influence on various aspects of life satisfaction.

Past studies have conceptualized housing satisfaction differently and at different levels of detail. For example, some studies (Campbell, Converse and Rogers, 1976; Cranz, Christensen, and Dyer, 1977) have relied on a single question as the measure of housing satisfaction--residents are asked to indicate their general satisfaction or dissatisfaction with their housing along a scale ranging

from very satisfied to very dissatisfied. Other studies (for example, Lawton, Nahemow and Teaff, 1975) have used multiple measures that include questions concerning the specific features of both the dwelling unit and the surrounding neighborhood that are liked and disliked by residents, as well as a measure of overall satisfaction.

According to Marans (1976), there is some question about the validity of measures of residential satisfaction, a concern that is related to the problem of dissonance reduction--the tendency for an individual to avoid conflict between past actions and the resulting current attitudes. Marans states:

"It has been argued that people often refuse to recognize or admit their dissatisfaction with a past decision such as the selection of their present place of residence. This refusal to recognize or admit dissatisfaction may occur at the conscious or subconscious levels."

Another factor that may affect the accuracy of residential satisfaction measures is the tendency of people to respond in ways which are socially desirable. Thus, people may tend to paint a rosier picture of their attitudes toward their housing than actually exists.

Marans continues by explaining that data from a national survey (Campbell, Converse and Rogers, 1976) have shown that response tendencies among certain groups of people produce an upgrading of reported satisfaction. This has been found to be particularly true in the case of older respondents. However, for the most part, these biases are

not very large, and they tend to apply more to general assessments than to assessments of specific attributes.

Marans concludes:

"These findings suggest that while there is some justification in questioning the validity of responses dealing with overall assessment (that is, housing satisfaction, neighborhood satisfaction, and community satisfaction), response bias tends to diminish considerably in assessments of specific attributes of these environments."

In addition to the investigation of the extent to which people are satisfied with their place of residence, past studies have also examined the relative influence of particular characteristics of the residential environment on residential satisfaction and well-being.

Dimensionalizing Environments

In the past decade or so, several attempts have been made to dimensionalize built environments in terms of their particular characteristics or attributes (Harrigan, 1974; Lawton and Kleban, 1971; Moos and Lemke, 1980; Windley and Scheidt, 1980). According to Windley and Scheidt (1980), "The resulting environmental taxonomies have ranged in emphasis from the social and psychological characteristics of settings to the physical attributes of settings, and some have used a combination of both social and physical attributes."

Researchers have become increasingly involved in studies that are concerned with identifying particular

dimensions of built environments. These attempts to dimensionalize the environment have occurred at different levels, and some have focused on specific types of environmental settings, but generally the goal of analyzing the environment in terms of context-relevant taxonomic dimensions is to more fully understand the manner in which people respond to specific attributes of the surrounding environment.

Several authors have pointed out the need to further dimensionalize relevant aspects of the built environment (Kasl, 1977; Marans and Rogers, 1975; Marans, 1976). In his review of research on community and neighborhood satisfaction, Marans (1976) reports that the vast majority of residents who have been studied are either moderately or totally satisfied with the place in which they live. However, he states:

"What is less clear from the studies is the specific set of features or attributes of those communities and neighborhoods which lead people to respond favorably and, conversely, which attributes produce negative responses among the remainder of residents."

Marans continues:

"The challenge remains for the environmental planner and researcher to determine the complete bundle of attributes that constitute high-quality environments."

As part of this investigation, several environmental dimensions will be examined in terms of the relative contributions to the expressed housing satisfaction of residents.

Conceptual Model

The conceptual model used in this study was derived from a framework originally proposed by Marans and Rogers (1975) and later modified by Campbell, Converse and Rogers (1976). According to this model, objective attributes of the residential environment are perceived and assessed by the observer and after several attributes are assessed, the individual formulates global assessments of satisfaction (for example, housing satisfaction, neighborhood satisfaction, community satisfaction). These global satisfactions, in combination with overall assessments of other domains of life experience, contribute to a total "quality of life experience" or life satisfaction.

Implicit in this model is the notion that satisfaction with one's place of residence is related to the assessments and perceptions of many attributes of the residential environment. These attributes may be studied at different levels of environmental scale. For example, Campbell, Converse and Rogers conceptualized the residential milieu of an individual in terms of three hierarchical domains: the community, the neighborhood, and the dwelling unit.

Another important aspect of the "quality of life" model is that a critical distinction is made between objective indicators (the reality) and subjective indicators (perceptions, assessments, and satisfactions) of the quality of the residential environment. It is recognized explicitly

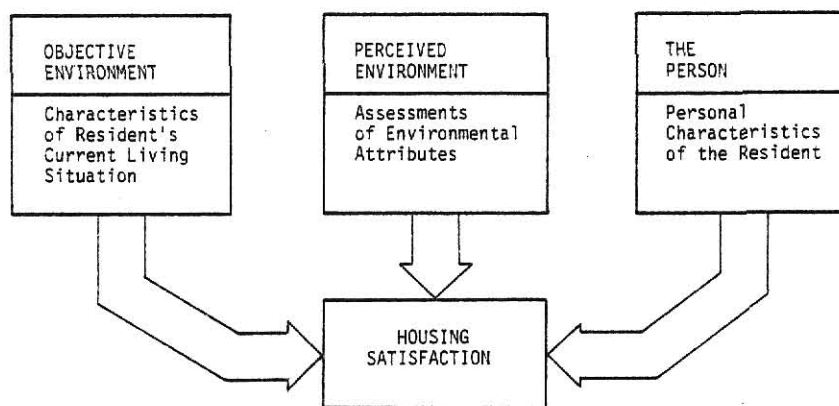
that the way in which an individual perceives the environment is not necessarily equivalent to the environment as it actually is. According to Marans and Rogers, this distinction is based on the assumption that "...characteristics of the individual intervene so as to influence the subjective indicators. Specifically, the manner in which an objective environmental attribute is perceived and assessed by individuals is modified by their present situation, their attitudes, and their past experiences."

Like the theoretical model used by Marans and Rogers (1975) and Campbell, Converse and Rogers (1976), the conceptual approach of the present study rests on three basic assumptions: (1) any particular setting is made up of component parts or environmental attributes, (2) each attribute can be evaluated or assessed by people who use that setting, and (3) the sum of the individual assessments contributes to an overall evaluation of that setting.

Figure 6 illustrates the basic elements of the conceptual model proposed in this study. According to the model, housing satisfaction is influenced by three factors: (1) objective characteristics of the resident's current housing, (2) the resident's assessments of those objective environmental attributes, and (3) personal characteristics of the resident. Additionally, it might be hypothesized that an individual's assessments of environmental attributes

are influenced by both objective characteristics of the environment and his or her personal characteristics; however, this hypothesis will not be tested here.

Figure 6: Basic Conceptual Model



Operationalization of Key Variables

Perceived Environment

For the purposes of this study, the perceived environment refers to the assessments made by residents concerning particular environmental characteristics of the building. These assessments were grouped according to three environmental dimensions of particular concern in the design of housing environments for older people: (1) ACCESSIBILITY of the residential environment; (2) SPATIAL ADEQUACY of the dwelling unit; and (3) PRIVACY features of the residential environment. Specific issues included in each of these environmental dimensions are described below:

ACCESSIBILITY of the residential environment--transportation and parking, building ingress/egress, ease of access from building entrance to apartment, ease of access from apartment to other spaces and facilities within the building, and accessibility of dwelling unit features.

SPATIAL ADEQUACY of the dwelling unit--including the kitchen, dining/living room, bathroom, bedroom(s), and storage space.

PRIVACY features of the residential environment--the aural and visual privacy within and between dwelling units, group privacy within shared spaces, and density of the residential environment (i.e., the number of people living in the building).

Objective Environment

Objective environmental attributes refer to features of the environment that can be measured by outside observers, independent of the particular individual whose perceptions

and/or assessments are being sought. For the purposes of this study, these objective attributes refer to particular characteristics of the resident's current living situation which are closely associated with the dimensions of perceived environment, and include: (1) apartment location within the building; (2) type of apartment unit; (3) building entrance usually used; (4) hallway on which the resident lives; and (5) presence or absence of apartment balcony. Each of these features was measured by the interviewer according to pre-determined categories.

Personal Characteristics

Personal characteristics which are of particular interest in this study include the following: (1) DEMOGRAPHY--age, gender, marital status, education; (2) PHYSICAL HEALTH AND MOBILITY--self-rated health, use of mobility aids, car ownership; (3) SOCIAL ACTIVITY PARTICIPATION--participation in organized social activities, visiting with neighbors and other residents; (4) HOUSING HISTORY--previous residence, number of years lived in the community; and (5) CURRENT LIVING SITUATION--length of residence at Meadowlark Hills, living arrangement (Does the resident live alone or with someone?), apartment ownership.

Housing Satisfaction

Housing satisfaction is an issue that cannot be tied to only one or two aspects of a person's particular housing environment. Instead, it is a multi-dimensional concept made up of a variety of different components, some of which can be traced to physical characteristics of the environment and some of which relate more to the social or psychological aspects of the environment.

In order to provide a more comprehensive and meaningful assessment of housing satisfaction, a housing satisfaction index was developed. This index is composed of separate, but related, issues believed to contribute to the overall housing satisfaction of the residents of Meadowlark Hills.

Specific components of the housing satisfaction index include the following: (1) convenience of site location within the community; (2) location of apartment within the building; (3) the notion of sharing facilities with others; (4) friendliness of the other residents; (5) attractiveness of building exterior; (6) attractiveness of building interior; (7) cleanliness and maintenance of the public spaces; and (8) costs of living at Meadowlark Hills. Residents' satisfaction with each of these particular issues was measured through the use of a four-point Likert scale ranging from very satisfied to very unsatisfied. In addition, residents were also asked to indicate their overall satisfaction with living at Meadowlark Hills.

Intended Audience

It is hoped that the findings of this research effort will benefit several different audiences: the research community, policy makers, administrators of housing environments for older persons, and design professionals. However, primary emphasis will be placed on the utility of the findings for environmental designers and behavioral scientists. Researchers will probably be most interested in the methodological approach of the study and the theoretical implications of the findings.

Environmental planners and designers, on the other hand, usually value research findings more in terms of their practical application to particular design situations. Hence, design applications and implications as well as specific recommendations for future planning will be made. These recommendations will provide suggestions for improving the performance of Meadowlark Hills in meeting the needs of its residents at two levels: (1) modifications to the present facility, and (2) guidelines for the addition of new building(s) in the future.

METHODOLOGY

Overview

The following chapter describes the methodological approach of the present study. The emphasis of the first part of the chapter is on data collection, including a discussion of data collection methods, sample selection, the interview instrument, and administration of the questionnaire. The remainder of the chapter is devoted to the methods of data analysis. This discussion on data analysis focuses on multiple regression and the construction of composite measures which were used in the regression model.

Methods of Data Collection

This building evaluation has been primarily conducted from a single perspective--that of the independent older residents living in the main building at Meadowlark Hills. Thus, interviews with residents were chosen as the most appropriate method for gathering information concerning: (1) how the residential environment is used for specific activities and social encounters; (2) perceptions of and meanings attached to specific places, objects, and materials; and (3) satisfactions and dissatisfactions with the built environment.

This primary method of data collection was supplemented by information obtained from the administrator of Meadowlark Hills and the architectural design drawings and plans. Several informal visits with the administrator provided information concerning the background and operation of Meadowlark Hills, as well as insight into several problematic building-related issues as viewed from his perspective. For example, the administrator pointed out that although there were lounges provided on the residential floors, these spaces were seldom (if ever) used by anyone.

The examination of design drawings provided additional clues to both the physical characteristics of the building and potential incongruities between the built environment and the needs and preferences of its users. For example, it became obvious that residents living at the far end of the longer hallway were at a distinct disadvantage in terms of their proximity to the elevator, laundry room, and tenant storage space located on their residential floor.

The Sample

The population consisted of a total of 84 residents living in 74 apartments. From this population, a randomly-selected sample of 37 residents was interviewed (only one person per apartment was interviewed). The sample was stratified according to apartment unit type: efficiency, one-bedroom, one-bedroom end, and two-bedroom. An attempt

was made to interview ten residents in each category; however, due to a high refusal rate, this quota was not filled in all instances. Table 1 shows the breakdown of residents interviewed by apartment type.

Respondents were distributed fairly evenly among the residential floors of the building with a greater proportion of them residing on the third floor. Table 2 summarizes the distribution of respondents among the residential floors of the building.

Respondents ranged in age from seventy to ninety-four. The average age of the sample was eighty-one years with a standard deviation of 5.8 years. Women constituted 81% of the sample, and the most prevalent marital status was widowhood (65%). The sample was ethnically homogenous--fully 100% of the respondents were Caucasian. As could be expected, nearly all of the respondents (97%) were Protestant, many of whom belong to one of the sponsoring churches.

Most of the respondents were of upper middleclass socioeconomic status backgrounds--78% of the sample continued their education after receiving their high school diploma, and 41% had done some post-graduate work in college. When asked to rate their overall health, over two-thirds (68%) reported that it was either good or excellent. Slightly more than half (54%) of the respondents reported that they still own and drive an automobile.

TABLE 1

Distribution of Respondents According to Apartment Type

Type of Apartment	Total No.	No. Residents Interviewed	Percent
Efficiency	16	8	50%
One-Bedroom	20	10	50%
One-Bedroom End	22	9	41%
Two-Bedroom	16	10	62.5%
All Apartments	74	37	50%

TABLE 2

Distribution of Respondents by Floor

Floor of Building	No. Residents Interviewed	% of Total Respondents
2nd Floor	9	24.3%
3rd Floor	12	32.4%
4th Floor	7	19.0%
5th Floor	9	24.3%
All Floors	37	100%

In regard to their current living situation, almost all respondents (95%) indicated that they had lived at Meadowlark Hills for at least one year, and 70% had lived there two years or more. Approximately three-quarters (76%) of the sample purchased their apartment with the Life Use Fee option, while the remaining 24% rent their apartment by the month. Finally, 84% of the sample lived by themselves--the other 16% lived with their spouse.

The Interview Instrument

The interview began with a short introduction, which explained the intent and scope of the study. Residents were then asked to provide some general information about themselves, their current living situation, and their previous residence. This was followed by questions which asked respondents to assess specific features of the residential environment at Meadowlark Hills. Finally, respondents were asked to evaluate several general characteristics of their living situation at Meadowlark Hills. For a detailed description of the questionnaire, refer to Appendix A.

Pre-Test

Preceding the final revision of the questionnaire, a preliminary draft of the instrument was pre-tested on five residents. Unfortunately, the pre-test was conducted before

it was decided to stratify the sample by apartment unit type, and as a result, not every apartment unit type was represented in the pre-test sample. More importantly, the decision to include three respondents who lived in one-bedroom end apartments resulted in the inability to obtain the desired number of respondents in that particular category. (Pre-test respondents' interviews were not used in the final analyses.)

Administration of the Questionnaire

Initial contact with residents was made at one of the monthly tenant meetings. A verbal explanation of the study was presented at that time, and residents were informed that they might be contacted at a later date to participate in the study.

After prospective respondents were selected to participate in the study, the administrator was notified of the residents chosen. An initial "screening" of the residents selected for participation was made at this point by the administrator. If he was aware of a particular resident's failing health--as evidenced by a recent move to the Health Care Unit, a stay in the hospital, or a general state of "confusion"-- he advised the interviewer of the circumstances and, generally, that person was replaced by another person living in the same type of apartment. The administrator, in turn, notified individual residents that

they had been selected to participate in the study, and that they would be contacted regarding the scheduling of an interview.

Residents were then contacted by phone, given a brief description of the study, and then asked to participate. An interview appointment was then scheduled at the resident's convenience. All interviews were administered in the respondent's apartment, and ranged in duration from forty-five minutes to one hour and fifty-five minutes. The average length of the interview was one hour and fifteen minutes.

Refusal Rate

There was a substantial number (24) of the survey population who were either unable to participate in the study for one reason or another or simply chose not to participate. Approximately two-thirds of these people were unable to participate due to health-related reasons--that is, the resident was either in the hospital, had been transferred to the Health Care Unit, was not well, or was judged by the administrator to be too confused, hard of hearing, or otherwise unsuitable to be interviewed. The remaining one-third chose not to participate because they were either "not interested" or "too busy".

Data Analysis

Data from the completed questionnaire were coded with the assistance of an automated computer coding program available at the Department of Architecture, Kansas State University. The statistical procedures used in the analysis of data were adopted from the SAS User's Guide (Helwig and Council, 1979). The original data were processed in order to create a SAS data set, which served as a basis from which subsequent statistical procedures could be performed.

Multiple Regression Analysis

Stepwise multiple regression was chosen as the primary method of analysis, and the particular variation of stepwise used in the analysis was the backward elimination technique. Beginning with a model that includes all independent variables, this method deletes variables from the model one by one until all remaining variables meet the criterion for significance of the F-statistic (.05). At each step, the variable showing the smallest contribution to the model was deleted.

Index Construction and Item Analysis

Before the regression analyses could be performed, it was necessary to consolidate certain individual variables into composite measures, in order to reduce the data into a more manageable form. Because of its power and elegance,

factor analysis is generally the preferred method for determining the number and nature of the underlying variables among larger numbers of measures. However, due to a small sample size ($n=37$), it was decided that index construction would be a more appropriate technique for data reduction.

A three-step approach was used in the construction and validation of the composite measures which served as independent and dependent variables in this study. These steps included the selection of items for inclusion in the index, the examination of bivariate relationships among items, and validation of the index through the use of item-analysis. Each of these is described in greater detail below:

ITEM SELECTION--Initially, items were selected for inclusion based on their face validity. An attempt was made to unidimensionalize each index; that is, each composite measure represented only one dimension. Items were thus grouped together if they seemed to be reasonable measures of some variable.

BIVARIATE RELATIONSHIPS AMONG ITEMS--The next step was the examination of the bivariate relationships among the items being considered for inclusion in the index. All possible bivariate relationships between items were studied through the use of correlation coefficients in order to determine the relative strength of those relationships. Items which were not empirically related to several of the other items were generally dropped from consideration.

ITEM ANALYSIS--Finally, internal validation of the composite index was determined through item analysis. Item analysis examines the extent to which the composite index is related to (or predicts responses to) the items included in the index itself (Babbie, 1979). Basically, if a

given item was found to be poorly related to the index, it was assumed that other items in the index washed out the contribution of that item. Since the item in question contributes nothing to the index's power, it was generally excluded. Composite measures were derived by combining items which exhibited an item-total correlation of .30 or above. Cronbach's alpha was used as a measure of internal consistency.

The composite measures of variables which were used in the regression model are described in greater detail in Appendix B.

RESULTS

Overview

The empirical results of this investigation are presented as two related, but distinct, sets of findings. The first of these concerns findings of theoretical significance, and focuses on the results of the regression analyses. Independent variables which were found to explain the greatest amount of variance in housing satisfaction are discussed in terms of their contribution to the regression model. Since these findings are based on conceptual issues, their implications may not necessarily be limited to the designed environment under study.

The second set of findings is application-oriented in nature and pertains specifically to the architectural design of Meadowlark Hills. Findings in this section may be viewed as a summarized version of all assessments made by residents concerning specific characteristics of the building. Positive assessments are included as well as negative assessments, and the findings are presented at different levels of environmental scale and grouped according to the particular environmental issues they address.

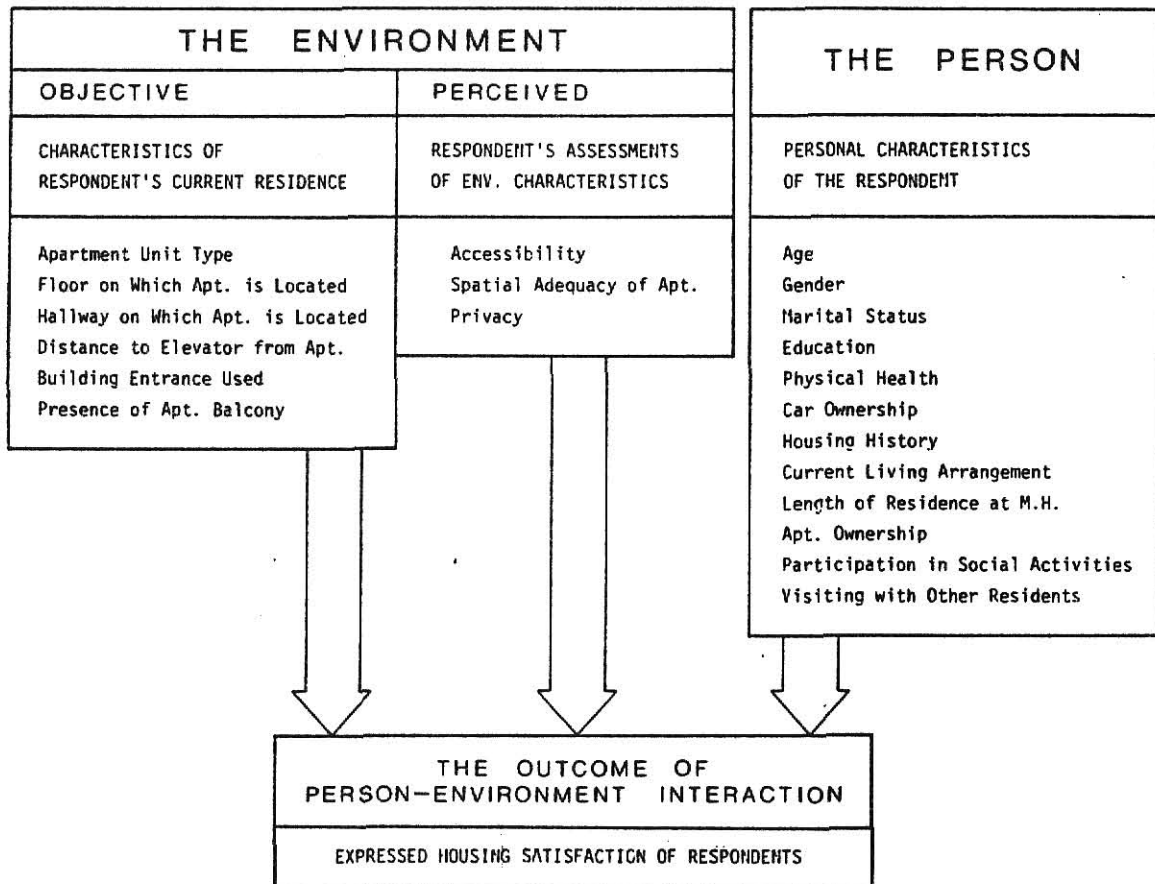
Results of the Regression Analysis

As previously discussed, one of the primary objectives of this study is to develop a predictive model of housing satisfaction which may be generalizable to other similar residential environments. To this end, a series of regression analyses was performed in order to ascertain the relative influence of the independent variables on the expressed housing satisfaction of residents. Figure 7 shows a schematic overview of the relations between the major variable domains of the study. Subdimensions within each domain--some of which denote specific variables, and others of which refer to a group of related variables--are listed as well.

Results from the regression analyses indicate that five out of the 21 independent variables tested are statistically significant predictors of housing satisfaction. These variables represent all three of the predictive variable domains and include: (1) respondent's current living arrangement--Does the respondent live alone or with someone else?; (2) hallway on which the respondent lives; (3) apartment ownership--Does the respondent own or rent their apartment?; (4) building accessibility; and (5) a social involvement factor related to the respondent's frequency of visits with other residents.

Table 3 shows the final stepwise regression model for housing satisfaction, including the five independent

Figure 7: Schematic Representation of Variable Domains



variables found to be statistically significant and the percentage of variation in housing satisfaction accounted for by each. The cumulative total variance (R^2) in the dependent variable explained by these five predictors is considerable--almost 54%--and the respondent's current living arrangement is the strongest single predictor of the five, with a unique variance of 22% (i.e., "unique" contingent upon the presence of the other four variables in the model). The hallway on which the respondent lives ranks as the second strongest predictor (unique variance=13.6%), and the remaining three variables each contribute a unique variance of approximately 10%.

Viewed in terms of the three predictive variable domains, the results take on a slightly different meaning. Three of the five variables included in the model, including the strongest single predictor, belong to the personal characteristics domain. In regard to current living arrangement, persons living with someone else (their spouse) indicated higher levels of housing satisfaction than those living alone. Surprisingly, residents who rent their apartment by the month expressed greater satisfaction than residents who own their apartment. And respondents who are more socially active in terms of visiting with other residents showed higher levels of housing satisfaction than those who visit with other residents on a less frequent basis.

TABLE 3

Final Stepwise Regression Model: Percent of Variance in Housing Satisfaction Accounted for by Independent Variables

Independent Variable		B Value ¹	Unique Variance ²
(PC) ³	Current Living Arrangement	-3.629	.221
(E ₀)	Hallway on which Respondent Lives	-2.242	.136
(PC)	Apartment Ownership	2.083	.112
(E _p)	Accessibility	0.410	.102
(PC)	Visiting with Other Residents	-0.326	.092
Cumulative Total Variance (R ²)			.539

¹ B values are used here to indicate the relative strength and the direction of the relationship between each predictor and the dependent variable.

² Unique variance represents the variance contributed by that variable alone given the presence of other variables in the model. The simple sum of the unique variance for all independent variables does not equal the cumulative total R² due to the interrelation (interaction) of independent variables.

³ Letters in parentheses are abbreviations for independent variable domains: (PC) = Person Characteristics; (E₀) = Objective Environment; (E_p) = Perceived Environment.

Although the personal variables did explain greater proportions of the variance in housing satisfaction, the variance accounted for by two environmental variables was statistically significant. The hallway on which the respondent lives and accessibility are the two environmental variables included in the model. Higher housing satisfaction was associated with respondents living on the north-south hallway (the shorter of the two hallways), while persons living on the longer hallway reported lower satisfaction. Individuals who indicated high levels of satisfaction with features related to the accessibility of the building also indicated high levels of overall housing satisfaction.

To recapitulate, higher levels of housing satisfaction were expressed by those residents who: (1) live with their spouse, (2) rent their apartment by the month, (3) are socially active in terms of visiting with other residents, (4) live in an apartment located on the shorter hallway, and (5) are satisfied with features related to the accessibility of the building. A more detailed discussion of these findings and their implications is presented in Chapter 4.

A Summary of Residents Assessments of the Built Environment

The application-oriented findings of this study are based on assessments made by residents concerning specific environmental characteristics of Meadowlark Hills. Positive assessments of the building are included as well as negative assessments, and the findings thus serve to point out which aspects of the building are perceived by residents as adequate and those which are perceived as inadequate. Findings are presented at three levels of environmental scale: the site, the building, and the apartment unit. Within this hierarchy, assessments have additionally been grouped according to the particular environmental issues they address (for example, CAR PARKING AND VEHICULAR ACCESS, BUILDING ENTRANCES, APARTMENT LOCATION, etc.)

THE SITE

Site Location

POSITIVE ASSESSMENTS

Many residents indicated high levels of satisfaction with the view from their apartment. In fact, about 20% stated that the view out over the landscape was the feature they liked most about their apartment. Most of these people were located in apartments that looked either toward the north or west. Interestingly, many residents living on the north side of the building stated that they would not trade their view for an apartment with a balcony that faces toward the south, east, or west. (None of the apartments on the north side of the building currently have balconies.)

NEGATIVE ASSESSMENTS

A sizable number of those residents interviewed (35%) stated that the location of Meadowlark Hills was inconvenient in terms of its proximity to surrounding services. Problematic issues raised by residents in this regard include: the location is too isolated from downtown Manhattan and Westloop (a suburban shopping center), no sidewalks are provided between Meadowlark Hills and Blue Hills shopping center (a small neighborhood shopping area), the hill between Blue Hills shopping center and Meadowlark Hills is difficult to negotiate on foot, and better transportation services need to be provided.

Car Parking and Vehicular Access

POSITIVE ASSESSMENTS

Virtually all residents who own a car indicated satisfaction with the proximity of the parking lot they use to their apartment.

Those residents who usually ride with someone else, take a taxi, or ride the Sr. Citizens' bus were generally satisfied with the waiting area provided at the front lobby.

NEGATIVE ASSESSMENTS

One out of five residents who own an automobile indicated that it was important to have a view of their parked car from their apartment. None of these people presently have such a view of their parked car.

Three-quarters of those residents who own an automobile but do not currently park their car in one of the carports stated that they would prefer to park their car out of the weather.

Building Entrances

POSITIVE ASSESSMENTS

Entrance doorways were judged as wide enough by all respondents.

NEGATIVE ASSESSMENTS

Over half (59%) of the residents interviewed indicated that the building entrance they usually use is not adequately protected from the weather. Most of these people use either the east or west entrance, and the most frequently mentioned problem was that the doors are difficult to open when it's windy outside.

78% stated that they had some degree of difficulty opening and closing the entrance doors. In addition to the aforementioned problems caused by windy conditions, many respondents indicated that the doors are heavy and difficult to open with one hand.

More than half (57%) of the respondents indicated a preference for automatic doors at building entrances.

Approximately one in five (22%) responded that passing through two sets of entrance doors was inconvenient.

Apartment Location

POSITIVE ASSESSMENTS

Neither of the hallways on the residential floors was judged as too narrow.

NEGATIVE ASSESSMENTS

22% of the respondents indicated a preference for their apartment to be located closer to the elevator. As might be expected, these people were usually the ones located at the opposite end of the hallway as the elevator, and were generally in poorer health than those who were satisfied with the location of their apartment with respect to the elevator.

Proximity of the respondent's apartment to the elevator also affected their perceptions of other related environmental attributes. For example, 27% stated that the hallway they lived on was too long, because the walk from the elevator to their apartment was too far. Similarly, 19% felt that the distance from the building entrance they normally use to their apartment was too long, because of the walking distance from the entrance to the elevator and then the distance from the elevator to their apartment.

Several respondents (22%) reported that the hallway they live on was too dark. A majority of these people indicated that when the lighting level in the hallway is reduced (in order to save energy), the light above their doorway is turned off, and this makes it difficult for them to find the keyhole in order to unlock their apartment door.

Proximity to Shared Spaces & Facilities

POSITIVE ASSESSMENTS

Nearly all residents (95%) were satisfied with the location of the community activity spaces on the first floor.

Most residents are able to read all of the signs within the building with no difficulty.

Most residents were satisfied with the location of the mailboxes on the first floor.

A majority (86%) indicated satisfaction with sharing laundry facilities with others, and 84% were satisfied with the proximity of the laundry room to their apartment.

The location of the trash room on residential floors was satisfactory for most respondents.

NEGATIVE ASSESSMENTS

A significant number of residents (27%) voiced a desire for larger storage areas outside their apartment, and 19% expressed a preference for that storage space to be located closer to their apartment.

More than half (57%) indicated a preference for a letter drop on their floor so that they would not have to make a special trip to the mailboxes on the first floor before the mailman arrived.

Nearly half (46%) indicated that the door to the trash room was heavy and difficult to open.

Floor Lounges

NEGATIVE ASSESSMENTS

When asked about the floor lounges, nearly everyone said that they were used rarely (if ever) for the intended purpose of promoting social interaction between people living on the same floor. After two years of disuse, the lounges on the second and third floors are currently being used as a crafts room and a meeting place for the "Recycling Sewing" group. However, the floor lounges are still not perceived as very inviting. They were described by various respondents as too small, crowded, dark, and unpleasant--"an over-sized closet" according to one person.

APARTMENT UNITS

Entrance

POSITIVE ASSESSMENTS

Respondents expressed little or no difficulty with opening the front door to their apartment, and the doorway was wide enough for all residents to pass through comfortably.

Kitchen

POSITIVE ASSESSMENTS

Kitchen appliances such as the refrigerator and stove were within the reach of all respondents.

The height of the countertop (30") was considered to be satisfactory by most respondents.

Nearly all respondents were satisfied with the overall size of their kitchen.

A majority (84%) expressed satisfaction with a tile floor in the kitchen.

NEGATIVE ASSESSMENTS

A large number of respondents (43%) indicated that they could not reach all of their kitchen cabinet space without difficulty. Most of these people had trouble reaching the top shelf and the cabinet over the refrigerator. Also, one-third of the sample stated a preference for more kitchen cabinet space, as well as a desire for more countertop space for the kitchen work area.

Nearly half (46%) expressed a desire for a window in their kitchen. Reasons stated by these residents included a desire for a view, light, and ventilation.

A significant number of the people living in one- or two-bedroom apartments (28%) felt that the opening between the kitchen and the living/dining room should be narrower.

A minority (16%) indicated a preference for carpet in their kitchen in order to provide more comfort and to reduce the possibilities for slippage. Others, however, felt that carpet would be more difficult to clean and maintain.

Living-Dining Room

POSITIVE ASSESSMENTS

A sizable majority of respondents were satisfied with the size of their living/dining room, and these people expressed satisfaction with their current dining arrangement.

Bathroom

POSITIVE ASSESSMENTS

Most residents expressed satisfaction with the size of their bathroom, and almost all responded that there was enough storage space in their bathroom.

NEGATIVE ASSESSMENTS

Several respondents reported having trouble getting into and out of their bathtub. For most of these people, the grab-bar at the head of the tub is too high for them to reach while sitting down in the tub.

Approximately one in five respondents indicated a preference for carpet, rather than tile, on the floor of their bathroom. Reasons given for that preference included the following: carpet looks better, is more comfortable, and reduces the possibilities of slippage.

A minority (16%) expressed a preference for a window in the bathroom in order to provide natural lighting and ventilation.

Bedroom(s)

NEGATIVE ASSESSMENTS

Nearly half (48%) of those persons living in one- or two-bedroom apartments expressed a preference for a larger bedroom(s).

Half of those residents living in an efficiency apartment stated a preference for a separate bedroom.

Storage Space

NEGATIVE ASSESSMENTS

A substantial number of respondents (43%) would prefer to have more storage space inside their apartment. The most common type of additional storage space mentioned was more closet space for hanging clothes. Other storage needs included space for storing furniture, a utility closet, and shelves for books and papers.

Balcony

NEGATIVE ASSESSMENTS

More than one-third of those who don't currently have a balcony indicated that they would prefer to have one. Most of these people expressed a desire for easy access to the outdoors from their apartment.

Other Apartment-Related Issues

POSITIVE ASSESSMENTS

A sizable majority of respondents reported that they are able to open and close the windows in their apartment without difficulty.

NEGATIVE ASSESSMENTS

The most frequently mentioned shortcomings of apartment design (other than those which have already been mentioned) included the following:

- (1) Windows should be easier for residents to remove for purposes of cleaning.
- (2) Baseboards continually come unglued and fall off.
- (3) There was no carpet pad installed under the carpet, and the floor is noticeably less comfortable.
- (4) Light switches between the kitchen and the living/dining room in the one- and two-bedroom apartments are reversed and, as a result, are somewhat awkward to use.

CONCLUSIONS

General Discussion of Research Findings

Overall, the results of the stepwise multiple regression analyses indicate that each of the predictor domains--personal characteristics, objective environment, and perceived environment--contributes to the understanding of variations in housing satisfaction among residents. In terms of unique domain variance, personal characteristics contributed the most to the prediction of housing satisfaction, with three of the five variables in the final regression model belonging to this domain. The implication here is that a person's satisfaction with their place of residence is more dependent on the characteristics of the individual (including their demographic, social, and health characteristics; their attitudes; and their past experiences) than on the characteristics of the environment itself.

This study supports the findings of other studies which have shown that personal characteristics of residents have a greater impact on residential satisfaction than objective or perceived characteristics of the residential environment (Campbell, Converse and Rogers, 1976; Marans, 1976; Pastalan, 1977). Unfortunately, the environmental designer

has little control over the characteristics of the residential population for whom he or she is designing. The designer can, however, become familiar with the descriptive characteristics and limitations of the entire user population, and then create an environment that is capable of accommodating the widest possible range of people within that spectrum.

The other two variables included in the final regression model represent the impact of the built environment on housing satisfaction. Both of these factors are related to the accessibility of the residential environment. Perceived accessibility is based on residents' assessments of several related issues--ease of access to their apartment, ease of access from their apartment to other spaces and facilities within the building, and ease of access within the apartment unit itself.

The hallway on which the respondent's apartment is located, an objective measure, is strongly associated with accessibility. As previously discussed, higher levels of housing satisfaction were expressed by respondents living on the shorter of the two hallways, while persons living on the longer hallway generally reported lower satisfaction. This general trend was caused by several individuals who viewed the location of their apartment (on the longer hallway) as somewhat "isolated." This feeling of isolation was the result of two factors--the decreasing mobility of the older

person, coupled with living in an apartment located at the far end of the longer hallway.

These findings suggest that residential environments which provide greater accessibility (i.e., easier access) are likely to be perceived as less isolated than those which inhibit access. This, in turn, will lead to higher residential satisfaction.

Independent variables not found in the final regression model, in combination with those that were included in the final model, did explain a larger portion of the variation in the dependent variable. However, the reason that these variables were not included in the final regression model is that they were not statistically significant at the specified level ($F=.05$).

Limitations

The present study is not without certain limitations. The first of these limitations was imposed by a concern, adopted at the outset, to focus on the effects of the physical environment on residential satisfaction. Although results of previous studies have shown satisfaction to be dependent upon characteristics of the environment not necessarily tied to its physical properties, the decision to emphasize physical characteristics seemed appropriate since it is the physical (or built) environment that is the subject of this design evaluation.

Nevertheless, empirical results indicate that a more comprehensive approach to determining the environmental antecedents of housing satisfaction at Meadowlark Hills would have included the impact of social and psychological components as well as physical characteristics of the building. For example, when residents were asked to explain what they liked most about living at Meadowlark Hills, the most frequently given responses reflected the importance of environmental characteristics not expressly the result of physical attributes of the setting. These responses included: (1) medical security; (2) physical security; (3) friendliness of other residents; (4) the lack of maintenance responsibilities; (5) independence to do what they like, whenever they like; (6) "convenience" of the apartment units; and (7) opportunities for recreation and social interaction.

The question also arises concerning the generalizability of results from this study to other residential settings for the elderly. Clearly, findings concerning the evaluation of specific design features and recommendations for implementation purposes are directed toward their practical application at Meadowlark Hills. However, this does not preclude the possibility of these issues arising at other similar settings. As a result, these findings and design recommendations may be viewed as instructive in the sense that they serve as an example of

several environmental issues involved in the planning and design of residential environments for the elderly.

Findings related to the theoretical model of housing satisfaction which was developed in this study may, perhaps, be more easily adopted in other settings, since these results are based on theoretical concepts rather than specific design characteristics. However, it is suggested that further development of this model in several other settings is a necessary next step before concrete conclusions can be drawn.

Implications for Research and Design

Future Research Directions

One of the objectives of this study was to assess the contribution of the built environment to the residential satisfaction of older people living in a congregate housing facility. The built environment was viewed in terms of three environmental dimensions: accessibility, spatial adequacy, and privacy. Results indicate that one of these dimensions--accessibility--does contribute to the variation in housing satisfaction of residents.

However, since these environmental dimensions (and the specific items included in each) are unique to this study, considerable work remains to be done on the refinement of the dimensions. External validation of these environmental dimensions is a necessary next step in the development of

statistically valid measures. More specifically, these dimensions should be tested on a larger population of older residents and, preferably, on residents living in a range of different types of residential settings.

The present study also departs from others in its conceptualization of housing satisfaction. Some studies have relied on a single measure as an indicator of housing satisfaction. As Marans (1976) points out, there is some question about the validity of single measures of residential satisfaction, while response bias tends to diminish considerably in assessments of specific attributes of residential environments. In order to avoid the inherent problems associated with an overly generalized conceptualization of housing satisfaction, multiple measures were developed in order to gauge people's response to different aspects of the residential environment believed to influence housing satisfaction. Since this set of measures is relatively untested, except for the present study, it is recommended that the housing satisfaction index--like the environmental dimensions discussed above--should be the subject of external validation and further refinement.

In addition to the external validation and subsequent refinement of the composite measures used in this study, it is suggested that other environmental dimensions should be developed and tested in an attempt to explain a greater proportion of the variation in residential satisfaction. It

should be recognized explicitly that not all of these environmental dimensions will necessarily reflect the presence or absence of physical attributes of the environment. As previously discussed, social and psychological aspects of the environment also play a major role in determining one's residential satisfaction.

If the goal of future research is the development of environmental dimensions which are widely applicable to residential settings for the elderly, then a variety of different settings, located in different macroenvironments, serving residents of varying needs, should be the subject of further investigation. For example, similarities and differences between settings varying in terms of: (1) sponsorship (private vs. public); (2) size of the project (number of residents); (3) service provisions (no services vs. on-site services); (4) geographic location (urban vs. rural); (5) physical and mental capabilities of residents ("independent" vs. "dependent"); and (6) economic cost for residents, may have an effect on the perceived importance of particular environmental dimensions.

Also, it should be recognized that some dimensions will vary within a particular setting while others may vary across different types of settings. For example, the objective environmental attributes related to "accessibility" (e.g., apartment location, distance to elevator, etc.) will be different for every apartment

located within the same setting. On the other hand, the objective measure of a building's "density" (i.e., number of people in the building) will remain constant for the same setting, but may vary when that setting is compared to others.

A general conclusion that can be drawn from this study is that more comprehensive studies on the environmental sources of residential satisfaction among older people are called for, and these studies should include the following objectives: (1) the identification of further dimensions of the residential environment and their contribution to the residential satisfaction of older persons; (2) the development of residential satisfaction scales/indices according to type of housing--e.g., low-rise vs. high-rise or apartment vs. single family detached; (3) the investigation of similarities and differences between objective and perceived environmental attributes.

Planning and Design Recommendations

The following planning and design recommendations are intended for implementation purposes in one or both of the following manners: (1) as modifications to the already existing apartment building at Meadowlark Hills, or (2) as guidelines for the planning and design of future high-rise apartment buildings at Meadowlark Hills. Recommendations included in this section address some of the more critical

practical-oriented research findings presented in Chapter 3, and it should be noted that an emphasis was placed on those environmental characteristics which were negatively assessed by residents.

For convenience, each recommendation is immediately preceded by a restatement of the particular findings from which it was generated. As with those findings presented in Chapter 3, planning and design recommendations are arranged in hierarchical fashion (i.e., the site, the building, the apartment unit) and according to the particular environmental issue they address.

THE SITE

Transportation Services

FINDINGS

A significant number of residents indicated that the location of Meadowlark Hills was inconvenient in terms of its proximity to surrounding services. The majority of these people either do not drive or do not own an automobile.

RECOMMENDATION

Better transportation services, available on an as-needed basis, should be provided at Meadowlark Hills. Although the Sr. Citizens' bus currently provides transportation for shopping trips on a once-a-week basis, many residents indicated that transportation services should be more readily available. It should be noted that as current residents grow older and become less able to provide their own transportation, the need for dependable and readily available transportation services will increase.

Location of Future Buildings

FINDINGS

Many residents indicated high levels of satisfaction with the view from their apartment. In fact, about 20% stated that the view out over the landscape was the feature they liked most about their apartment. Most of these people were located in apartments that looked either toward the north or west. Interestingly, many residents living on the north side of the building stated that they would not trade their view for an apartment with a balcony that faces toward the south, east, or west.

RECOMMENDATION

If other high-rise buildings are to be located on the site, they should be located such that they do not block the view out over the landscape that residents of already-existing apartments currently enjoy. It is particularly important to maintain the view of residents now living on the north side of the existing building. Since none of these apartments have a balcony, the view out over the Flint Hills serves an important role as residents' contact with the outside from their apartment.

THE BUILDING

58

Building Entrances

FINDINGS

Many residents indicated some degree of difficulty opening and closing the entrance doors to the building. Most of these people use either the east or west entrance, and the most frequently mentioned problems were that the doors are heavy and difficult to open with one hand and that the entrance is not adequately protected from the all too frequent high winds that sweep across the hilltop on which Meadowlark Hills is situated.

RECOMMENDATION

Better protection from the high winds could be effectively provided at both the east and west entrances of the existing building with the addition of wingwalls. (One such wall has already been built at the west entrance.) If a wall is provided on either side of the entrance with a small roof overhead, the resulting space would act as an outdoor vestibule that blocks the wind, and it could also serve as a sitting area for residents awaiting a ride.

The use of automatic doors at all building entrances would effectively reduce other problems associated with opening and closing entrance doors. Although automatic doors cost several times as much as conventional doors, the benefits gained by their use may make the investment worthwhile in the long run.

Elevator Location

FINDINGS

A significant number of residents indicated a preference for their apartment to be located closer to the elevator. As might be expected, these people were usually the ones located at the opposite end of the hallway as the elevator, and were generally in poorer health than those who were satisfied with the location of their apartment with respect to the elevator.

RECOMMENDATION

In the design of future high-rise buildings at Meadowlark Hills, it is recommended that apartments should be located no more than 120 feet from the elevator. This restriction will help to insure that no residents become isolated in their apartment because the walk from their apartment to the elevator is too long for them to negotiate.

Lighting Level in Hallway

FINDINGS

Several residents reported that when the lighting level in the hallway is reduced (in order to save energy), the light above their doorway is turned off, making it difficult for them to find the keyhole in order to unlock their apartment door.

RECOMMENDATION

If the practice of turning down the lighting level in the hallways is going to continue, then it would be better to install a dimmer switch in order to lower the lighting level on each light rather than turn some lights completely off while leaving others on. This will allow for more uniformity in the lighting level throughout the length of the hallway, thus minimizing the dark areas.

Floor Lounges

FINDINGS

When asked about the floor lounges, nearly everyone said that they were used rarely (if ever) for the intended purpose of promoting social interaction between people living on the same floor. After two years of disuse, the lounges on the second and third floors are currently being used as a crafts room and a meeting place for the "Recycling Sewing" group. However, the floor lounges are still not perceived as very inviting. They were described by various respondents as too small, crowded, dark, and unpleasant--"an over-sized closet" according to one person.

Disuse of the floor lounges may be attributed to one or both of the following factors: (1) the lounges are not perceived as very inviting by residents, or (2) residents do not feel the need for a social space on their floor of the building--many residents indicated that if they want to socialize with others, they prefer to go down to the social spaces on the first floor of the building.

RECOMMENDATION

Before floor lounges are included in the design of future buildings at Meadowlark Hills, it is recommended that input from residents (both current and potential future residents as well) should be solicited in order to determine if indeed there is a need, desire, or interest on their part in having floor lounges. If the need exists, then it is suggested that the lounges should be more spacious and attractive, and should have windows in order to provide a view and allow natural lighting into the space.

Mail Drop.

FINDINGS

A majority of residents indicated a preference for a letter drop on their floor so that they would not have to make a special trip to the mailboxes on the first floor before the mailman arrives.

RECOMMENDATION

In the design of other high-rise buildings a Meadowlark Hills, it is recommended that a letter drop be provided on each residential floor. A small chase could be provided directly adjacent to or within close proximity to the elevator for this purpose.

Door to Trash Room

FINDINGS

Nearly half of the residents interviewed indicated that the door to the trash room was heavy and difficult to open.

RECOMMENDATION

The use of a lighter-weight door and/or reducing the amount of tension in the spring-loaded door that is currently used would make the trash room more easily accessible to residents.

APARTMENT UNITS

Kitchen Cabinets and Countertops

FINDINGS

A large number of respondents indicated that they could not reach all of their kitchen cabinet space without difficulty. Most of these people had trouble reaching the top shelf and the cabinet over the refrigerator. Also, one-third of the sample stated a preference for more kitchen cabinet space, as well as a desire for more countertop space for the kitchen work area.

RECOMMENDATION

More kitchen cabinet space should be provided, especially in the one- and two-bedroom apartments, and it should be located such that it is within the reach of all residents (recommended maximum height of top shelf = 60 inches). Also, more countertop space should be provided in the one- and two-bedroom apartments (recommended amount of countertop space = 12 sq. ft.)

Kitchen Window

FINDINGS

Nearly half of the residents interviewed expressed a desire for a window in their kitchen. Reasons stated by these residents included a desire for a view, light, and ventilation.

RECOMMENDATION

Some apartments that have a kitchen window with a view to the outside should be included in the design of future buildings at Meadowlark Hills. Although it is not possible for every apartment to have a kitchen window, the inclusion of several of these apartments will help satisfy those residents who have a strong preference for such an option. These apartments could perhaps be the ones located at the corners of the building.

Opening between Kitchen & Living Room

FINDINGS

A significant number of the people living in one- or two-bedroom apartments felt that the opening between the kitchen and the living/dining room should be narrower.

RECOMMENDATION

The opening between the kitchen and the living/dining room in one- and two-bedroom apartments should be narrower in order to minimize the view into the kitchen from the living/dining room. As an added advantage, by narrowing this opening, more wall space will be provided which could be used for more kitchen cabinet and countertop space (see KITCHEN CABINETS AND COUNTERTOP SPACE, above). Also, if used in conjunction with KITCHEN WINDOW (also above), the otherwise disadvantage of lowering the amount of natural daylighting in the kitchen caused by narrowing this opening will be avoided.

Kitchen Carpeting

FINDINGS

A minority indicated a preference for carpet in their kitchen in order to provide more comfort and to reduce the possibilities of slippage. Others, however, felt that carpet would be more difficult to clean and maintain.

RECOMMENDATION

Kitchen carpet should be an option provided to residents of all apartments (at the expense of the resident, of course).

Grab-bar in Bathtub

FINDINGS

Several residents reported having trouble getting into and out of their bathtub. For most of these people, the grab-bar at the head of the tub is too high for them to reach while sitting down in the tub.

RECOMMENDATION

The grab-bar at the head of the bathtub should be low enough so that a person sitting in the tub can reach it (recommended maximum height of lowest end = 18 inches).

Bathroom Carpeting

FINDINGS

Approximately one in five residents indicated a preference for carpet, rather than tile, on the floor of their bathroom. Reasons given for that preference included the following: carpet looks better, is more comfortable, and reduces the possibilities of slippage.

RECOMMENDATION

Bathroom carpeting should be an option provided to residents of all apartments (again, at the expense of the resident).

Preference for Separate Bedroom

FINDINGS

Half of those residents living in an efficiency apartment stated a preference for a separate bedroom.

RECOMMENDATION

In the design of future high-rise buildings at Meadowlark Hills, a smaller percentage of efficiency apartments should be provided. At the same time, a greater proportion of one-bedroom apartments should be included in the design.

Bedroom Size

FINDINGS

Nearly half of those persons living in one- or two-bedroom apartments expressed a preference for a larger bedroom(s).

RECOMMENDATION

In the design of future buildings at Meadowlark Hills, one-bedroom apartments should be provided with a larger bedroom (recommended size = 140 sq. ft., and two-bedroom apartments should have at least one bedroom that is larger in size (recommended size = 155 sq. ft.).

Storage Space

FINDINGS

A substantial number of residents would prefer to have more storage space inside their apartment. The most common type of additional storage space mentioned was more closet space for hanging clothes. Other storage needs included space for storing furniture, a utility closet, and shelves for books and papers.

RECOMMENDATION

More storage space should be included in all types of apartments. Most important is additional storage space for hanging clothes and the inclusion of a utility (or broom) closet.

Balcony

FINDINGS

More than one-third of those who don't currently have a balcony indicated that they would prefer to have one. Most of these people expressed a desire for easy access to the outdoors from their apartment.

RECOMMENDATION

A larger percentage of apartments with balconies is recommended in the design of other buildings at Meadowlark Hills (recommended percentage of apartments with balconies = 60%).

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APPENDIX A

Interview Questionnaire

☐

SUBJECT I.D.

A. Background Information on Residents

LIVING ARRANGEMENT PRIOR TO MOVING TO MEADOWLARK HILLS

A1) What type of housing did you live in just prior to your moving to MH?
Was it a house, apartment, duplex, or something else?

☐ house ☐ apartment ☐ duplex ☐ other: _____

A2) Did you own or rent that (house/apartment/duplex)?

☐ owned ☐ rented ☐ other

A3) About how much rent did you pay a month? Was it:

☐ less than \$150
☐ \$150-300
☐ \$300-450
☐ \$450 or more

A4) Could you tell me the approximate value of your (house/apartment/duplex) at the time you moved to MH? Was it:

☐ less than \$25,000
☐ \$25,000-50,000
☐ \$50,000-75,000
☐ \$75,000-100,000
☐ more than \$100,000

A5) Where was your previous residence located? Was it:

☐ in this neighborhood (within 8 blocks)
☐ in Manhattan, but a different part of town
☐ in another town
☐ in a rural area (on a farm or in an unincorporated town)

A6) How long had you lived at that residence?

☐ 1 year or less
☐ 1-5 yrs.
☐ 5-10 yrs.
☐ 10-20 yrs.
☐ 20 years or more

A7) How many rooms were in your previous residence?

☐ 3 or less
☐ 4-6
☐ 7-9
☐ 10 or more

A8) How long have you lived in Manhattan?

☐ 5 years or less
☐ 5-10 years
☐ 10-20 years
☐ 20 years or more

A9) Had you ever lived in a high-rise apartment building (over 2 stories) before moving to MH?

☐ yes ☐ no

A10) Why did you decide to move to MH?

PRESENT LIVING ARRANGEMENT

A11) INTERVIEWER--RECORD APARTMENT LOCATION: Apartment No. _____

A12) How long have you lived here at MH?

☐ less than 6 months
☐ 6 months - 1 year
☐ 1-2 years
☐ more than 2 years

A13) What type of apartment do you live in? Is it:

☐ efficiency ☐ 2 bedroom ☐ 1 bedroom ☐ 1 bedroom end

A14) Do you rent your apartment by the month or do you own your apartment and pay the monthly service fees?

☐ rents by month ☐ owns apartment

A15) Do you live by yourself?

☐ yes ☐ no

A16) Who lives with you?

☐ spouse ☐ sister

DEMOGRAPHY

- A17) INTERVIEWER--RECORD R's GENDER: ☐ female ☐ male
- A18) INTERVIEWER--RECORD R's RACE:
☐ caucasian ☐ black ☐ other: _____
- A19) Are you presently married, widowed, divorced, separated, or have you never been married?
☐ married ☐ widowed ☐ divorced ☐ separated ☐ never married
- A20) Is your religious preference Protestant, Catholic, Jewish, or something else?
☐ Protestant ☐ Catholic ☐ Jewish ☐ None ☐ Other: _____
- A21) Which of the following best describes your working situation? Are you presently:
☐ working ☐ working ☐ retired
☐ full-time ☐ part-time
- A22) What kind of work did you do most of your working life?

☐ university-related ☐ not university-related
- A23) INTERVIEWER--IF R IS A FEMALE THAT IS/WAS MARRIED, ASK: What kind of work did your husband do most of his working life?

☐ university-related ☐ not university-related ☐ NA
- A24) What is the highest level of schooling you have completed?
☐ grade school (8th grade or less)
☐ high school (9-12 grades)
☐ high school diploma (or equivalent)
☐ some college (or business/trade school)
☐ college diploma
☐ post-graduate work
- A25) How old are you? _____ years

PHYSICAL HEALTH AND MOBILITY

- A26) How would you rate your overall health at the present time? Would you say that it's:
☐ excellent ☐ good ☐ fair ☐ poor
- A27) Is your health now better, about the same, or not as good as it was three years ago?
☐ better ☐ same ☐ not as good
- A28) How much do your health problems stand in the way of your doing the things you want to do?
☐ not at all ☐ a little ☐ a great deal
- A29) Are you able to walk up and down a flight of stairs without help?
☐ yes ☐ no
- A30) Are you able to walk half a mile (about 8 ordinary blocks)?
☐ yes ☐ no
- A31) How often do you require the use of a walking stick or cane when walking?
☐ never ☐ some of the time ☐ most of the time ☐ always
- A32) How often do you require the use of a walker?
☐ never ☐ some of the time ☐ most of the time ☐ always
- A33) How often do you require the use of a wheelchair?
☐ never ☐ some of the time ☐ most of the time ☐ always

B. General Accessibility Features of M.H.

TRANSPORTATION

- B1) Do you (or your husband/wife/sister) own and drive a car now?
☐ yes ☐ no
- B2) How do you usually get to places around town that are out of walking distance? Do you usually:

drive yourself ☐ ride with someone else ☐ ride the afa bus ☐ take a taxi ☐

Skip to question (B10)

- B3) Where do you usually park your car?
☐ east lot ☐ west lot ☐ elsewhere:

B4) In your opinion, is the walking distance from where you park your car to your apartment too long?
☐ no ☐ yes

B4a) What's the problem? _____

- B5) If it was possible, would you prefer to park your car closer to your apartment than you now do?
☐ no ☐ yes

B6) Can you see your car when it's parked from your apartment?
☐ yes ☐ no

B7) How important to you is it to have a view of your parked car from your apartment?
 very important ☐ ☐ ☐ ☐ ☐ very unimportant

B8) Do you park your car in one of the garage stalls?
☐ yes ☐ no

B9) Would you prefer to be able to park your car in out of the weather?
☐ yes ☐ no

(Skip to question B15)

B10) Where, inside the building, do you usually wait for your ride?

☐ lobby ☐ living room ☐ west entrance ☐ your apt. ☐ elsewhere:

B11) Where does your ride usually park and wait for you?

☐ passenger loading area ☐ east parking lot ☐ west parking lot ☐ elsewhere:

B12) Are you able to see your ride when it arrives from (waiting area used)?
☐ yes ☐ no

B13) Would you prefer to be able to see your ride when it arrives from (waiting area used)?
☐ yes ☐ no

B14) Would you prefer that the walk between the place you usually wait for your ride and where your ride usually picks you up was shorter?
☐ no ☐ yes

BUILDING INGRESS/EGRESS

B15) Which door do you usually use to enter the building?

☐ south door ☐ east door ☐ west door ☐ other:

B16) Is that entrance adequately protected from the weather (sun, wind, rain, and snow)?
☐ yes ☐ no

B16a) What seems to cause the problem? _____

B17) How much difficulty do you have in opening/closing the entrance doors? Would you say:

☐ no difficulty ☐ a little difficulty ☐ some difficulty ☐ a great deal of difficulty

B17a) What kinds of problems does this cause? _____

B18) Some people may prefer to have a door that slides open automatically when entering the building. How desirable to you would it be to have an automatic door located at the entrance you usually use?

very desirable ☐ ☐ ☐ ☐ ☐ very undesirable

B19) Is the entrance doorway you usually pass through wide enough?

☐ yes ☐ no

B19a) What seems to cause the problem? _____

B20) Does the fact that you must pass through two sets of doors when entering or leaving the building ever cause you problems or any inconvenience?

☐ no ☐ yes

B20a) What kinds of problems does this cause? _____

EASE OF ACCESS TO APARTMENT

B21) What is the route you usually take when walking from the building entrance to the front door of your apartment? _____

B22) In your opinion, is the walking distance from the building entrance to your apartment too long? ☐ no ☐ yes

B22a) What kinds of problems does this cause? _____

B23) How often do you use the elevator? (INTERVIEWER--READ RESPONSES)

☐ always ☐ most of the time ☐ sometimes ☐ seldom ☐ never

B23a) Why do you sometimes use the stairs? _____

B24) Are you satisfied with the location of your apartment with respect to the elevator or do you wish you were located either closer to or further away from the elevator?

☐ satisfied ☐ prefers closer ☐ prefers further away

B24a) Why? _____

B25) INTERVIEWER--RECORD WHICH HALLWAY R LIVES ON:

☐ A (east-west) ☐ B (north-south)

B26) In your opinion, is the hallway you live on too long?

☐ no ☐ yes

B26a) What kinds of problems does this cause? _____

B27) In your opinion, is the hallway you live on too narrow?

☐ no ☐ yes

B27a) What kinds of problems does this cause? _____

B28) In your opinion, is the hallway you live on too dark?

☐ no ☐ yes

B28a) What kinds of problems does this cause? _____

EASE OF ACCESS FROM APARTMENT TO ANCILLARY FACILITIES

B29) Does the location of community activity spaces (such as the community activity room, dining room, and recreation room) on the first floor prevent you from using those spaces as often as you would like?

☐ no ☐ yes

B29a) What exactly about the location of the community activity spaces prevents you from going there as often as you would like? _____

B30) Are you able to read the signs identifying different rooms and apartments in this building without any difficulty?

☐ yes ☐ no

B30a) Which signs are difficult for you to read? _____

B30b) What causes the problem? _____

C. Social Characteristics of M.H.

B31) Would you prefer to have your mailbox located closer to your apartment?

☐ no ☐ yes

B31a) Why?

B32) Would you prefer to have a maildrop on your floor so that you don't have to walk all the way down to the mailboxes in order to mail a letter?

☐ no ☐ yes

B33) Are you satisfied with the location of the laundry room or would you prefer that the laundry room was located either closer to or further away from your apartment?

☐ satisfied ☐ prefers closer ☐ prefers further away

B34) Are you satisfied with sharing laundry facilities with other residents or would you prefer to have a washer and dryer in your own apartment?

☐ satisfied sharing ☐ prefers own washer/dryer

B35) Do you use one of the storage cages outside of your apartment for storing things?

☐ yes ☐ no

B35a) Why not?

B36) Is your storage cage located close enough to your apartment or would you prefer that it was closer?

☐ satisfied ☐ prefers storage closer

B37) Is the trash dumpster located close enough to your apartment or would you prefer that it was located closer?

☐ satisfied ☐ prefers trash dumpster closer

B38) Is the door to the trash room ever difficult for you to open?

☐ no ☐ yes

SOCIALIZING WITH OTHER RESIDENTS

C1) Where in the building do you usually visit with other residents?

- ☐ R's apartment
☐ other residents' apartments
☐ community activity room
☐ dining room
☐ living room
☐ hallways
☐ other: _____

C2) On the average, how often are you visited in your apartment by other residents?

☐ never ☐ 3/year or less ☐ 4-10/ year ☐ 1/mo. ☐ 2-3/ month ☐ 1/wk. ☐ 2-4/ week ☐ 5/wk. plus

C3) On the average, how often do you visit other residents in their apartments?

☐ never ☐ 3/year or less ☐ 4-10/ year ☐ 1/mo. ☐ 2-3/ month ☐ 1/wk. ☐ 2-4/ week ☐ 5/wk. plus

C4) How satisfied are you with the range and variety of the social and recreational activities provided here at MH?

very satisfied ☐ ☐ ☐ ☐ ☐ very unsatisfied

C5) Do you wish there were other social activities available at MH?

☐ no ☐ yes

C5a) What kind of activities?

USE OF SOCIAL SPACES

"I would now like to ask you some questions concerning your use of the social spaces located on the first floor of this building. These questions deal with how often you go to or use a particular place to participate in specific activities and how well that place is suited to the needs of the activities which occur there. Let's start with the activities that take place in the community activity room...."

Community Activity Room

C6) How often do you attend/participate in town meetings?

☐ never ☐ 3/year ☐ 4-10/ year ☐ 1/mo.

C7) How often do you attend/participate in Coffee Corner?

☐ never ☐ 3/year ☐ 4-10/ year ☐ 1/mo. ☐ 2-3/ month ☐ 1/wk.

C8) How often do you attend/participate in Friday Nite at the Community Activity Room?

☐ never ☐ 3/year ☐ 4-10/ year ☐ 1/mo. ☐ 2-3/ month ☐ 1/wk.

C9) How often do you attend/participate in bingo?

☐ never ☐ 3/year ☐ 4-10/ year ☐ 1/mo. ☐ 2-3/ month ☐ 1/wk.

C10) How often do you attend/participate in Gospel Sing-a-long?

☐ never ☐ 3/year ☐ 4-10/ year ☐ 1/mo. ☐ 2-3/ month ☐ 1/wk.

C11) How often do you attend/participate in Sunday Evening Vespers?

☐ never ☐ 3/year ☐ 4-10/ year ☐ 1/mo. ☐ 2-3/ month ☐ 1/wk.

C12) How often do you attend/participate in Wednesday Afternoon Bible Study?

☐ never ☐ 3/year ☐ 4-10/ year ☐ 1/mo. ☐ 2-3/ month ☐ 1/wk.

C13) Do you ever go to/use the community activity room for any other activities?

☐ no ☐ yes

C13a) What? (specify activities)

C14) If you could redesign the community activity room, what would you change? (Possible changes might include things such as the size and layout of the room, the presence or absence of windows, lighting, furniture, and interior finishes.) Why?

Visitor's Lounge

C15) How often do you attend committee meetings or residence council meetings in the visitor's lounge?

☐ never ☐ 3/year ☐ 4-10/ year ☐ 1/mo.

C16) How often do you go to Music Listening between 11:00 and 12:00 noon (before dinner) in the visitor's lounge?

☐ never ☐ 3/year ☐ 4-10/ year ☐ 1/mo. ☐ 2-3/ month ☐ 1/wk. ☐ 2-4/ week ☐ 5/wk. month

C17) Do you ever go to/use the visitor's lounge for any other activities?

☐ no ☐ yes

C17a) What? (specify activities)

C18) If you could redesign the visitor's lounge, what would you change? Why?

Recreation Room

- C19) How often do you go to the recreation room to browse through, read, or check out books from the library book collection?
- | | | | | | | | |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|
| ☐ never | ☐ 3/year or less | ☐ 4-10/ year | ☐ 1/mo. | ☐ 2-3/ month | ☐ 1/wk. | ☐ 2-4/ week | ☐ 5/wk. plus |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|
- C20) How often do you go to the recreation room to participate in games such as pool, card playing, or checkers?
- | | | | | | | | |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|
| ☐ never | ☐ 3/year or less | ☐ 4-10/ year | ☐ 1/mo. | ☐ 2-3/ month | ☐ 1/wk. | ☐ 2-4/ week | ☐ 5/wk. plus |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|

- C21) Do you ever go to/use the recreation room for any other activities?

☐ no ☐ yes

C21a) What? (specify activities) _____

- C22) If you could redesign the recreation room, what would you change? Why?

1st Floor Dining Room

- C23) How often do you eat a meal in the dining room?
- | | | | | | | | |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|
| ☐ never | ☐ 3/year or less | ☐ 4-10/ year | ☐ 1/mo. | ☐ 2-3/ month | ☐ 1/wk. | ☐ 2-4/ week | ☐ 5/wk. plus |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|

- C24) Do you ever go to the dining room for any other activities?

☐ no ☐ yes

C24a) What? (specify activities) _____

- C25) If you could redesign the dining room, what would you change? Why?

Living Room

- C26) How often do you go to/use the living room?
- | | | | | | | | |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|
| ☐ never | ☐ 3/year or less | ☐ 4-10/ year | ☐ 1/mo. | ☐ 2-3/ month | ☐ 1/wk. | ☐ 2-4/ week | ☐ 5/wk. plus |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|
- C26a) What for? (specify activities) _____

- C27) If you could redesign the living room, what changes would you make? Why?

Conference Room

- C28) How often do you go to/use the conference room?
- | | | | | | | | |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|
| ☐ never | ☐ 3/year or less | ☐ 4-10/ year | ☐ 1/mo. | ☐ 2-3/ month | ☐ 1/wk. | ☐ 2-4/ week | ☐ 5/wk. plus |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|
- C28a) What for? (specify activities) _____

- C29) If you could redesign the conference room, what would you change? Why?

Floor Lounge

- C30) How often do you go to/use the lounge on your floor?
- | | | | | | | | |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|
| ☐ never | ☐ 3/year or less | ☐ 4-10/ year | ☐ 1/mo. | ☐ 2-3/ month | ☐ 1/wk. | ☐ 2-4/ week | ☐ 5/wk. plus |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------------|--------------------------------|------------------------------------|-------------------------------------|
- C30a) What for? (specify activities) _____

C31) If you could redesign the lounge on your floor, what changes would you make?

CONTACT WITH FRIENDS/RELATIVES LIVING ELSEWHERE

C32) Are you ever visited here at MH by your friends who live elsewhere in Manhattan?

☐ yes ☐ no (Skip to question C36)

C33) When your friends come to visit, where in the building do you usually visit with them?

- ☐ R's apartment
☐ visitor's lounge
☐ dining room
☐ living room
☐ elsewhere: _____

C34) Is there enough room in your apartment so that you can comfortably entertain your friends when they come to visit?

☐ yes ☐ no

C34a) What's the problem?

C35) Is there anything in particular about MH (such as its location) or your apartment (such as its size) that makes it difficult for your friends to visit you here?

☐ no ☐ yes

C35a) What?

C36) Are you ever visited here at MH by your relatives?

☐ yes ☐ no (Skip to question D1)

C37) When your relatives come to visit, where in the building do you usually visit with them?

- ☐ R's apartment
☐ visitor's lounge
☐ dining room
☐ living room
☐ elsewhere: _____

C38) Is there enough room in your apartment so that you can comfortably entertain your relatives when they come to visit?

☐ yes ☐ no

C38a) What's the problem?

C39) Is there anything in particular about MH (such as its location) or your apartment (such as its size) that makes it difficult for your friends to visit you here?

☐ no ☐ yes

C39a) What?

D. Dwelling Unit Assessment

"I would now like to ask you some questions about your apartment."

ENTRY

D1) How much difficulty do you have in opening/closing the front door to your apartment? (INTERVIEWER--READ RESPONSES)

☐ no ☐ a little ☐ some ☐ a great deal
☐ difficulty ☐ difficulty ☐ difficulty of difficulty

D1a) What exactly causes the problem? _____

D2) Is the doorway wide enough for you to pass through comfortably?

☐ yes ☐ no

D2a) What kinds of problems does this cause? _____

KITCHEN

D3) Are you able to reach all of your kitchen cabinets without difficulty?

☐ yes ☐ no

D3a) Which cabinets are difficult for you to reach?

D3b) What causes the problem? _____

D4) Would you prefer to have more kitchen cabinet storage space than you now have?

☐ no ☐ yes

D4a) What kind? _____

D5) Are you able to reach and operate all of the kitchen appliances without difficulty?

☐ yes ☐ no

D5a) What's the problem? _____

D6) Are you satisfied with the height of the countertop as it is or would you prefer it to be located either higher or lower than it now is?

☐ satisfied ☐ prefers higher ☐ prefers lower

D6a) Why? _____

D7) Would you prefer to have a window in your kitchen (above the sink) with a view to the outside?

☐ no ☐ yes

D7a) Why? _____

D8) Would you prefer to have carpet in your kitchen rather than a tile floor?

☐ no ☐ yes

D8a) Why? _____

D9) Are you satisfied with the overall size of the kitchen or would you prefer that it was either larger or smaller?

☐ satisfied ☐ prefers smaller kitchen ☐ prefers larger kitchen

D9a) Why? _____

LIVING/DINING

D10) Is the living room big enough to meet your needs or would you prefer that it was larger?

☐ satisfied ☐ prefers larger living room

D10a) Why? _____

D11) INTERVIEWER--RECORD R's DINING ARRANGEMENT:

D12) Would you prefer a different dining arrangement than you now have?

☐ no ☐ yes

D12a) What would you like changed?

D12b) Why?

BATHROOM

D13) Are you satisfied with the size of your bathroom or would you prefer to have either a smaller or larger bathroom?

☐ satisfied ☐ prefers smaller bathroom ☐ prefers larger

D13a) Why?

D14) INTERVIEWER--RECORD LOCATION OF R's LINEN CLOSET:

☐ in bathroom ☐ in hallway ☐ in dressing room

D15) Is there enough storage space in the bathroom for you?

☐ yes ☐ no

D15a) What kind of additional storage space do you need?

D16) Are you able to get into/out of the bathtub/shower without any difficulty?

☐ yes ☐ no

C16a) What's the problem?

D17) Would you prefer to have a window in your bathroom?

☐ no ☐ yes

D17a) Why?

D18) Would you prefer to have carpet in your bathroom rather than a tile floor?

☐ no ☐ yes

D18a) Why?

BEDROOM(S)

INTERVIEWER--IF R LIVES IN A ONE OR TWO BEDROOM APARTMENT, ASK:
Are you satisfied with the amount of space in your bedroom(s) or would you prefer that (it/they)(was/were) either smaller or larger?

☐ satisfied ☐ prefers smaller ☐ prefers larger ☐ NA

D19a) Why?

STORAGE SPACE

D20) Would you prefer to have more storage space inside your apartment?

☐ no ☐ yes

D20a) What kind of additional storage space?

WINDOWS

D21) INTERVIEWER--RECORD NUMBER OF WINDOWS AND TYPE:

E. Privacy Features of M.H.

D22) Are the windows in your apartment easy for you to open and close?

☐ yes ☐ no

D22a) Which windows cause you problems? _____

D22b) What's the problem? _____

BALCONY

D23) Do you have a balcony?

☐ yes ☐ no

D24) Would you prefer to have a balcony?

☐ yes ☐ no

D24a) Why/Why not? _____

D25) How often do you use your balcony when the weather is nice?
(INTERVIEWER--READ RESPONSES)

☐ often ☐ sometimes ☐ rarely ☐ never

D25a) In what ways do you make use of your balcony? (specify activities) _____

D26) If you could change anything about your apartment, what would you change?
Why? Anything else? _____

AURAL PRIVACY INSIDE THE APARTMENT

E1) Do you think that it is easy for a person in the hallway to hear what is going on in people's apartments?

☐ no ☐ yes

E2) When you are in your apartment, do you ever hear other people's noise?

☐ no ☐ yes

E3) Where does it come from?

☐ neighbors next door ☐ neighbors above ☐ neighbors below ☐ people in hallway ☐ other: _____

E4) Do you ever worry that you might bother others with the noise you make?

☐ no ☐ yes

VISUAL PRIVACY IN BACKSTAGE AREAS

E5) When you open your apartment door, do you think it is too easy for someone in the hallway to see all the way inside?

☐ no ☐ yes

E6) Does it ever bother you that visiting friends or relatives can see into the kitchen as they enter your apartment and walk to the living room?

☐ no ☐ yes

INTERVIEWER--ASK RESIDENTS OF EFFICIENCY APARTMENTS:

E7) Are you satisfied with a living/dining/bedroom combination or would you prefer a separate bedroom?

☐ satisfied ☐ prefers separate bdrm. ☐ NA

E7a) Why? _____

GROUP PRIVACY WITHIN SHARED SPACES

E8) Is it possible for a small group of people to meet for a private gathering or meeting anywhere in this building?

☐ yes ☐ no

E9) Would you like to have such a place?
☐ yes ☐ no

E10) Where?

☐	community activity room
☐	visitor's lounge
☐	conference room
☐	living room
☐	floor lounge
☐	other: _____

E11) How important to you is it to have a room available outside of your apartment for private gatherings or meetings with your family, friends, and other residents?

☐ very important ☐ important ☐ unimportant ☐ very unimportant

E12) Would you prefer such a room to be located on this floor, the first floor, or does it matter?

☐ this floor ☐ 1st floor ☐ doesn't matter

E13) How often is the lounge on this floor used for private gatherings, such as floor meetings or family get-togethers? Would you say it's used:

☐ frequently ☐ sometimes ☐ seldom ☐ never

E13a) Why isn't the lounge used more frequently?

E14) In what ways is the lounge on this floor used by the residents? (specify activities)

DENSITY

E15) At the present time, there are about 85 people living in the apartment units here in this building. In your opinion, is that too many, too few, or about the right number of people for living in a building like this one?

☐ right number ☐ too many ☐ too few

E15a) Why do you say that? What kinds of problems does this cause?

E16) At the present time, there are (24/16) people living on this floor of the building. In your opinion, is that too many, too few, or about the right number of people for living on one floor of a building like this one?

☐ right number ☐ too many ☐ too few

E16a) Why do you say that? What kinds of problems does this cause?

E17) In an ideal living situation would you prefer to live in a setting where you are surrounded by people of all ages or would you prefer to live among people of about the same age as yourself?

☐ same age ☐ all ages ☐ no preference

E17a) Why?

F. Housing Satisfaction

F1) Thinking about the kinds of things you would like to have near where you live---including the places you go fairly often---how convenient would you say this location is? Would you say it's:

☐ very convenient ☐ somewhat convenient ☐ not very convenient ☐ not at all convenient

F2) How does the size of your apartment meet your needs? Would you say it's:

☐ more than adequate ☐ adequate, ok ☐ less than adequate

F2a) Where do you need more space? Why? _____

F3) How satisfied or dissatisfied are you with the location of your apartment within the building, including the floor you're on and the location of your apartment on this floor? (INTERVIEWER--READ RESPONSES)

☐ very satisfied ☐ satisfied ☐ dissatisfied ☐ very dissatisfied

F3a) What's the problem? _____

F4) Considering the differences between living in an apartment building like this one and a more private residence, how satisfied are you with sharing spaces and facilities (like the community activity room, dining room, and laundry room) with other people? (INTERVIEWER--READ RESPONSES)

☐ very satisfied ☐ satisfied ☐ dissatisfied ☐ very dissatisfied

F4a) What's the problem? _____

F5) In an ideal living situation would you prefer to live in a low-rise apartment building (one- or two-stories) or a high-rise apartment building (over two-stories)?

☐ high-rise ☐ low-rise ☐ no preference

F5a) Why? _____

F6) In general, how satisfied or dissatisfied are you with the friendliness of the other residents here at MH? Would you say you're:

☐ very satisfied ☐ satisfied ☐ dissatisfied ☐ very dissatisfied

F7) How appealing to you is the outside appearance of this building? Would you say that from the outside this building is:

☐ very attractive ☐ somewhat attractive ☐ not very attractive ☐ not at all attractive

F7a) Why do you say that? _____

F8) How about the attractiveness of the interior spaces of this building, excluding the apartments themselves? Would you say that the interior spaces are:

☐ very attractive ☐ somewhat attractive ☐ not very attractive ☐ not at all attractive

F8a) Why do you say that? _____

F9) How satisfied are you with the cleanliness and maintenance of the public spaces? (INTERVIEWER--READ RESPONSES)

☐ very satisfied ☐ satisfied ☐ dissatisfied ☐ very dissatisfied

F10) Thinking of the costs involved in living in your apartment at MH--including the life use fee and monthly service fees or your monthly rent and utility bills--would you say that for what you get in return, the costs are very low, low, moderate, high, or very high?

☐ very low ☐ low ☐ moderate ☐ high ☐ very high

F11) What do you like most about living at MH? _____

F12) What do you like least about living at MH? _____

F13) Now, thinking only about your apartment, what do you like most about living here? _____

F14) What do you like least about your apartment? _____

F15) Considering everything we have talked about, how satisfied or dissatisfied are you with living in this apartment at MH? (INTERVIEWER--READ RESPONSES)

☐ very satisfied ☐ satisfied ☐ dissatisfied ☐ very dissatisfied

APPENDIX B

Description of the Composite Measures

Used in the Regression Analyses

The following appendix describes, in the form of several tables, the composite measures of variables which were used in the stepwise regression analyses. These composite measures were used to define both independent and dependent variables. Item-analysis was employed as a means of internal validation, and composite measures were derived by combining items which exhibited an item-total correlation of .30 or above. Cronbach's alpha was used as a measure of internal consistency.

TABLE A1

Description of Items Included in the Housing Satisfaction
Index and Item-Index Correlations

Item No	Description	Item-Index Correlation
F1	Convenience of Location**	.85
F3	Location of Apt. within Building**	.50
F4	Sharing Facilities with Others**	.68
F6	Friendliness of Other Residents**	.47
F7	Attractiveness of Building Exterior*	.38
F8	Attractiveness of Building Interior**	.47
F10	Costs of Living at Meadowlark Hills*	.41
Cronbach's Alpha (α) = .85		
*p < .05; **p < .01		

TABLE A2

Description of Items Included in the Composite Measure of
Building Accessibility and Item-Index Correlations

Item No	Description	Item-Index Correlation
B16	Weather Protection at Entrance*	.51
B17	Difficulty Opening Entrance Doors**	.78
B20	Inconvenience of 2 Sets of Entrance Doors*	.49
B33	Proximity of Laundry Room to Apt.**	.52
B36	Proximity of Storage Cage to Apt.**	.68
B37	Proximity of Trash Room to Apt.*	.39

Cronbach's Alpha (α) = .54

*p < .05, **p < .01

TABLE A3

Description of Items Included in the Composite Measure of
Apartment Size and Item-Index Correlations

Item No	Description	Item-Index Correlation
D4	Amount of Kitchen Cabinet Space**	.56
D9	Size of Kitchen	.29
D10	Size of Living Room**	.49
D13	Size of Bathroom*	.40
D19	Size of Bedroom(s)**	.80
D20	Amount of Storage Space in Apt.**	.69
E7	Preference for Separate Bedroom**	.94
Cronbach's Alpha (α) = .50		
*p < .05; **p < .01		

TABLE A4

Description of Items Included in the Composite Measure of
Privacy and Item-Index Correlations

Item No	Description	Item-Index Correlation
E1	Noise Transmission from Apt. to Hallway**	.58
E2	Hears Other People's Noise**	.80
E4	Worries about Bothering Others w/Noise**	.48
E6	View into Kitchen from Apt. Entry**	.69
Cronbach's Alpha (α) = .59		
*p < .05; **p < .01		

TABLE A5

Description of Items Included in the Composite Measure of
Housing History and Item-Index Correlations

Item No	Description	Item-Index Correlation
A6	Length at Previous Residence**	.83
A7	No. Rooms at Previous Residence**	.67
A8	No. Years Lived in Manhattan**	.57
Cronbach's Alpha (α) = .47		
*p < .05; **p < .01		

TABLE A6

Description of Items Included in the Composite Measure of
Physical Health and Item-Index Correlations

Item No	Description	Item-Index Correlation
A26	Self-Rated Health**	.90
A27	Health Compared to 3 Years Ago**	.70
A28	Limitations Caused by Health Problems**	.89
A29	Able to Walk Up and Down Stairs?**	.48
A30	Able to Walk Half a Mile?**	.68
A31	Use of Cane**	.61
A32	Use of Walker**	.48
A33	Use of Wheelchair**	.38
Cronbach's Alpha (α) = .84		
*p < .05; **p < .01		

TABLE A7

Description of Items Included in the Composite Measure of
Social Activity and Item-Index Correlations

Item No	Description	Item-Index Correlation
C6	Town Meetings*	.34
C7	Coffee Corner**	.42
C8	Friday Night Activity**	.58
C9	Bingo**	.44
C11	Vespers Service*	.42
C12	Bible Study Group**	.53
C19	Library**	.45
C23	Meals in Dining Room*	.52
C26	Living Room**	.53

Cronbach's Alpha (α) = .61

*p < .05; **p < .01

TABLE A8

Description of Items Included in the Composite Measure of
Visiting with Other Residents and Item-Index Correlations

Item No	Description	Item-Index Correlation
C2	Visited by Other Residents**	.81
C3	Visits Other Residents**	.94
Cronbach's Alpha (α) = .64		
*p < .05; **p < .01		

MEADOWLARK HILLS: A POST-OCCUPANCY EVALUATION
OF A CONGREGATE HOUSING FACILITY
FOR OLDER PERSONS

by

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ABSTRACT

This study reports the findings of a post-occupancy evaluation conducted at Meadowlark Hills, a congregate housing facility for older persons located in Manhattan, Kansas. The purpose of this design evaluation is two-fold: (1) to assess the effectiveness of a particular residential environment in terms of how well its environmental attributes meet the needs of current residents; and (2) to develop a predictive model of housing satisfaction which may be generalizable to other similar situations. The underlying intention of this study, therefore, is to provide results which have both immediate and long-term applicability.

An interview instrument was developed and administered to a randomly-selected sample ($N = 37$) of the older residents living in the high-rise apartment building at Meadowlark Hills. Independent variable domains under study included: (1) objective characteristics of the resident's current living situation, (2) the resident's assessments of those objective environmental attributes, and (3) personal characteristics of the resident. The expressed housing satisfaction of the resident served as the dependent variable. Stepwise multiple regression was used to examine the relationship between the dependent variable and the independent variable domains.

Results of the regression analyses indicate that five of the independent variables tested are statistically significant predictors of housing satisfaction and the cumulative total variance (R^2) in the dependent variable explained by these five variables is considerable--almost 54%. These variables represent all three of the predictive variable domains, and include: (1) respondent's current living arrangement, (2) hallway on which the respondent lives, (3) apartment ownership, (4) building accessibility, and (5) a social involvement factor related to the respondent's frequency of visits with other residents.

Overall, higher levels of housing satisfaction were expressed by those residents who: (1) live with their spouse, (2) live in an apartment on the shorter of the two hallways, (3) rent their apartment by the month, (4) express high levels of satisfaction with features related to the accessibility of the building, and (5) are socially active in terms of visiting with other residents. Further discussion of these findings addresses their implications for future research.

Results of this study are also presented as a set of practical-oriented findings intended for immediate or short-term application at Meadowlark Hills. These findings include all assessments made by residents concerning specific environmental characteristics, and thus serve to point out which aspects of the building are perceived by residents as adequate and those which are perceived as inadequate. Based on these assessments, planning and design recommendations which address some of the more critical assessments were developed. These recommendations are intended for implementation purposes in one or both of the following manners: (1) as modifications to the already existing apartment building at Meadowlark Hills, or (2) as guidelines for the planning and design of future high-rise apartment buildings at Meadowlark Hills.